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THE REPORT OF THE GOVERNMENT COMMISSION ON THE EXISTENCE OF PLAGUE IN SAN FRANCISCO.

To Surgeon-General Wyman, Marine Hospital Bureau, Department of the Treasury, Washington, D. C.—

SIR: The Special Commission appointed by the Honorable, the Secretary of the Treasury, for the purpose of ascertaining the existence or non-existence of bubonic plague in San Francisco, or other ports or places in the state of California, under instructions furnished by the Surgeon-General of the United States Marine Hospital Service, begs leave to submit the following report:—

In accordance with instructions received, the members of the commission proceeded as early as possible to San Francisco, one of them (Dr. Barker) arriving on Friday, January 25, 1901, and the other two (Dr. Flexner and Dr. Novy) on Sunday, January 27.

The first formal meeting of the commission was held at the Occidental Hotel, shortly after the arrival of all the members. At the meetings it was decided, in accordance with your instructions, to call and pay our respects to the Honorable the governor of the state, to place ourselves in communication with the local authorities, in order to obtain facilities for the examination of the sick and dead in Chinatown or elsewhere, should suspected cases arise, and to arrange for a laboratory in which pathological and bacteriological examinations could be undertaken.

Owing to the miscarriage of a letter to the commission by the Honorable, the governor of the state, the call of your commissioners upon time was delayed until Saturday, February 16. On this date, however, they had the privilege of paying their respects to the governor, and informing him of their orders. The governor received your commissioners most courteously, and stated that the authorities in California desired to facilitate by every means in their power the investigation concerned.

A call was also made upon the mayor of the city of San Francisco, and upon the president of the city board of health, both of whom offered to aid in any way possible to them the work of your commissioners. The city board of health supplied the commission with a map of Chinatown, upon which were charted the location of cases which the board had examined and regarded as plague.

During the first fifteen days of our visit, a bureau was opened in the Occidental Hotel; the commission met at 11 o'clock daily, and it was announced in the press that its members would be glad to confer with any one who had information to give regarding the existence or non-existence of plague in the city. In addition, letters were sent to a number of physicians, requesting an interview. The majority of those written to responded; opinions were divided, some of the physicians being confident that plague existed, others being sure that the disease was not here.

The establishment of this bureau proved to be a great service, not so much in affording us information about plague, as putting us into relation with the medical and business interests of the city. Through it a plan of work became easy to formulate; through it we learned how to gain access to the sick and dead Chinese, and how to proceed without exciting the opposition and suspicion of those among whom we were to work.

The representatives of the principal commercial interests of the city of San Francisco, including the Merchants' Association, the Manufacturers' and Producers' Association, the Board of Trade, the Pacific Coast Jobbers' and Manufacturers' Association, the Chamber of Commerce, the Pacific Mail Steamship, and the Southern Pacific Railway, called upon the commission, welcomed them to California, and offered their aid. Through the courtesy of Colonel Mendel, room 161 of the City Hall, previously used as a license office, was put at the disposal of the commission. It was fitted out as a laboratory, the outfit being purchased new in San Francisco.

Inspection of the Chinese Sick and Dead.—The attorney of the Chinese Consolidated Benevolent Association (ordinarily known as the Chinese Six Companies) advised the Chinese to coöperate with the commission. As a result, proclamations were issued ordering the Chinese to report all cases of sickness and death, no matter what the cause, to the officers of the Chinese Six Companies, in order that daily inspections might be made. Mr. Wong Ching, the secretary of the Six Companies, accompanied a member of the commission (Barker) daily to each house whence a report had been made, aided in finding the cases, acted as interpreter, and assisted in obtaining the necessary histories. It is believed by the members of the commission that the Chinese Six Companies acted in good faith, and that they made every attempt to give access to the sick. Certain cases of sickness, it is true, were not reported, and were not known of until the dead bodies were found, but this, it is believed, was due to negligence on the part of the Chinese concerned rather than to any attempt at concealment. The daily inspections of the sick and dead permitted observations relative to the mode of life of the people in the fourteen blocks of San Francisco which make up "Chinatown." These observations were extended by special trips of inspection under the guidance of officials under the city detective force and by numerous independent trips of inspection made by your commissioners.

The dwellings of the poorer classes of Chinese were found to be here, as they seem to be everywhere, shockingly unsanitary. In places there is marked overcrowding; the rooms are small; they are often devoid of light or means of ventilation, and nearly always insufficiently lighted and ventilated; many of them are filthy; some of them, especially those situated in basements, are damp, and emit a foul stench. The faults in sanitation are not confined to the tenement houses of the Chinese; on the contrary, in the rear of or over or under some of the more pretentious business buildings, are to be found sleeping and living apartments which are most objectionable from a sanitary point of view.

The Chinese in San Francisco are, however, in many respects much better off than are their countrymen in great native centers like Canton, or even those in a city like Hongkong. There is almost an entire absence of the utter destitution among many of the Chinese in Asia. The Chinese in San Francisco are, on the whole, very well fed, for wages are high and food abundant and cheap. They are also well clothed, as a rule, and particular emphasis is to be laid upon the fact that the Chinese here wear shoes, stockings, and trousers, since it is believed by many that the bare legs and feet of the Chinese in Canton and Hongkong have much to do with the frequency of infection with plague in those places.

A large percentage of the Chinese in San Francisco, it is said, smoke opium. There are a number of Chinese prostitutes, but inspection of the quarters occupied by the latter would indicate that the rooms in which they live are, on the whole, more wholesome as regards air, space, light, ventilation, and cleanliness, than those of the other inhabitants of the district.

On Wednesday, February 6, 1901, systematic daily rounds of visits were made by one of the commissioners, accompanied by Mr. Wong Ching, to the sick, as reported each day to the office of the Chinese Six Companies. Rapid clinical examinations were made, and notes kept of the result. A number of cases met with were obviously instances of advanced tuberculosis, others were affected with various chronic diseases. Such cases, being of no interest for the investigation, were visited only once. When patients were found who presented symptoms which were suggestive of plague a careful examination was made; in doubtful cases, the first visit was followed by others, and the progress of the illness carefully watched. These regular visits of daily inspection were maintained until February 16, 1901, during which period a sufficient number of instances had been observed to permit your commissioners to conclude beyond possible doubt that cases of bubonic plague were occurring among the Chinese.

Inspections of the dead in Chinatown were made also daily by the same member of the commission, beginning February 5, 1901. Access to the dead was gained in two ways. In the first place the assistant city physician, Dr. F. P. Wilson, makes the rounds of the undertaking establishments in Chinatown each forenoon. He inspects the bodies of the dead, and where necessary advises a pathological and bacteriological examination by Dr. Kellogg, the bacteriologist of the city board of health. Permission was obtained from these gentlemen for the making of simultaneous and independent inspections, and a pathological and bacteriological inspection by the commission.

A second mode of access to the dead was that afforded by the reports made by the Chinese directly to the officers of the Six Companies. By this mode it was in some instances possible to learn of the death of individuals and to make inspections of bodies before the city officials were informed of them.

From February 5 to February 16 thirteen dead Chinese were inspected, as follows:—

Death 1. (Inspected February 5.) Chun Ah Chou, æt. 44, actor, died this morning in Washington Street Theater. Body well nourished; two or three dark bluish spots on legs (possible hemorrhages). On palpation of the neck, axillæ, and groins, some enlargement of the lymphatic glands of the left groin was made out, though nothing corresponding to an outspoken bubo was visible. Inspecting commissioner advised a pathological and bacteriological examination, in order to remove all doubt as to the nature of the case. The results proved the case to be one of infection with plague. (Vide infra-laboratory case 1.)

Death 2. (Inspected February 5.)

Wong Koong Chin, elderly Chinese male; died at 6A Waverly Place; history of dyspnea and cyanosis for a long time before death. There is marked edema of legs; no enlargements of lymphatic glands ascertainable on palpation; death certificate signed by city physician as due to valvular disease of the heart. Case was not regarded as suspicious, and no pathological or bacteriological examination was insisted upon.

Death 3. (Inspected February 5.) Lee Kee, middle-aged Chinaman, found dead at 917½ Stockton Street. This man had been visited by members of the commission two nights before, the case having been reported to them as one suspected of being plague. Neither when seen during life nor on inspection after death was anything seen which pointed to infection with plague. No enlargement of lymphatic glands could be made out. A pathological and bacteriological examination was, however, deemed advisable for purposes of exclusion. The results as regard plague were negative. (Vide infra-laboratory case 2. The assistant city physician attributed the death to intestinal obstruction.

Death 4. (Inspected February 6.) Fong Sha Song, coolie, æt. 56; found dead in "Hall of Tranquillity," at rear of 1111 Stockton Street. No available history of condition intra vitam; body filthy; edema of legs; no enlarged lymphatic glands; no visible hemorrhages; pathological and bacteriological examination advised for purpose of exclusion. Results negative as regards plague. (Vide infra-laboratory case 4.) Death attributed by city physician to interstitial nephritis.

Death 5. (Inspected February 5.) Lum Hong Yuen; died in room 15, third floor, at 88 Ross Alley. Body found at Main Fook's undertaking establishment, at 740 Pacific Street. Through Mr. Wong Chung, secretary of the Six Companies, a school-teacher, who knew deceased, stated that the man had been ill about three weeks, that he had been a cook and waiter in the Chinese theater up to three weeks ago, when he quit work on account of "chancre and bubo;" that since then he has been in his own room in Ross Alley; that four or five days before his death he was given medicine by a Chinese doctor for a chill; that said medicine was too strong for the patient, and that "his breathing stopped, and he died." On inspection of the body no evidence of "chancre" could be found; in the right inguino-femoral region a large mass of swollen, conglomerated lymphatic glands could be felt. The swelling was so like similar swellings previously observed in cases of plague in Hongkong and in India that the case was regarded as almost certainly one of plague. Pathological and bacteriological examinations were made at once; the results proved correctness of the impression gained from inspection. (Vide infra-laboratory case No. 3.)

Death 6. (Inspected February 7.) Wong Chi Lui, æt. 45, cigar maker, who had worked at 418 Battery Street, found dead at 18½ (21½) Waverly Place. Through Mr. Wong Chung it was ascertained that the man had been ill for about two weeks, complaining of fevers, loss of appetite, and general uneasiness. He had pains in groins and lower abdomen, to which region a Chinese doctor had applied honey and salve. No history of venereal disease. For three or four days prior to death the man was unconscious. When chided by Mr. Wong Chung for not having reported the case earlier to the Six Companies, the brother of the deceased said he had not made a report, because he had believed that the patient would soon be well. On inspection and palpation a large mass of swollen glands was discovered in the left inguino-femoral region. It seemed likely that the case was one of plague, and the friends of the deceased were informed that an examination of the body would be made immediately. The pathological and bacteriological examination established the death as one due to infection with bacillus pestis. (Vide infra-laboratory case 5.)

Death 7. (Inspected February 11.) Tom Sham, male, age 51, actor in Chinese theater; room above theater, at 814 Washington Street, near room of the late Chun Ah Chou. (See death 1.) This man was reported as ill to the Six Companies, and was examined clinically on Friday, February 8, by Dr. Barker, who obtained the following history: The man had been acting in the theater about two weeks before, although it had been stated that he had not been very well from six to seven months previously. On February 4 he became seriously ill with fever and delirium. There had been some vomiting. The urine as observed by the attendant was described as brandy colored. He had a Chinese doctor in attendance, and his friends had not considered him ill enough to make a report to the Six Companies worth while. The man smoked about fifty cents worth of opium daily. On clinical examination the patient was found lying on his back in bed with legs drawn up; he was in a state of semi stupor. His pulse was 108, quick, rather full, but of low tension. The skin was hot and dry; respiration twenty to the minute. The face had an anxious expression; the tongue was coated in the middle; there was no palpable enlargement of the glands of the neck or axillæ, but in the right groin several slightly enlarged glands could be distinctly felt, and the patient, though his mind was partially clouded, winced decidedly when either groin was palpated. It was evident that the glands were quite tender. In the absence of urethral discharge, chancre or evidence of local irritation in the lower extremities, the case was, on account of the local and general phenomena, regarded as one of plague. The skin was cleansed, and a sterilized hypodermic needle introduced into the groin. A few drops of bloody fluid were withdrawn, presumably from one of the enlarged glands. It was difficult to be sure of this, however, as the patient could not be kept quiet while the needle was being inserted. No colonies of plague bacilli developed in the inoculated tube. The autopsy subsequently made indicated that the needle had failed to enter the enlarged gland. The patient was seen on the following day, when his condition showed no change for the better. The pulse was 136 and feeble; the patient seemed in general weaker, and an unfavorable prognosis was made. The patient's friends were told that an injection of Yersin's serum offered the best chances of recovery, though they were also told that not much could be hoped from any treatment in the stage of the disease in which the patient then was. The offer was refused. The man died on February 10, the next day. The dead body was inspected on the morning of February 11. The body was in a state of firm rigor mortis, the limbs being strongly flexed. On breaking down the rigor mortis and palpating the glands in the groin, it was difficult to say positively that there was any enlargement of the lymphatic glands. In view of the enlargement distinctly made out during life, and the clinical picture which had been observed, the death was believed to be one due to plague, and a pathological and bacteriological examination undertaken. The results indicated clearly the existence of infection with bacillus pestis. (Vide infra, laboratory case 6.)

Death 8. (Inspected February 11.) Chung Moon Woo Shea, wife of Chong Toy Ding, living in a cellar at 27½ Waverly Place. She had been seen clinically by inspecting commissioner on February 6 and also on February 9. When first seen clinically it was learned that she had been ill for three or four days, complaining of aching pains in the ribs and other bones, headache and loss of appetite. She had no cough. Two days before she had felt very chilly. On examination she was found to have slight fever; pulse 100; tongue slightly coated; examination of thorax and abdomen negative; careful palpation of cervical axillæ, cubital inguino-femoral and popliteal lymph glands revealed no enlargement or tenderness. When seen on February 9 the patient was found to have grown much worse; the pulse was 132 and quick; the temperature was higher; the tongue was dry; sores were appearing upon the lips, and the woman was semi stupid and moaning in bed. The next day, February 10, the woman died, and the body was inspected on the following morning. The house in which the body lay was filled with men, women, and children, friends of the deceased, all of whom objected strenuously to any examination of the body whatever. It was insisted upon, however, and finally by promising that only one small cut would be made, permission for examination was granted. Amid an appalling outbreak of grief upon the part of the friends, an incision was made in the groin, and, as the glands imbedded in the fat there showed us no hemorrhages or enlargement, no further examination was made. It is to be regretted in this case where only one slight incision was allowable that the spleen was not bacteriologically examined, as the case may have been one of general infection with bacillus pestis. At the same time, however, in the face of the strong protest made by the friends, it seemed wise, in order not to antagonize the Chinese too much, and so perhaps interfere with the progress of the whole investigation, not to go further. The body was surrounded by quicklime and sublimate sheet, and burial was permitted by the board of health.

Death 9. (Inspected February 12.) Fong Ah Fong, a female, æt. 12, found dead at 747 Sacramento Street, room 12, fourth floor. This little girl had been observed clinically on February 6, the first day of systematic clinical inspection. She gave a history of having caught a cold, followed by headache and lack of appetite. She complained of no chill or vomiting. Her pulse was 84, and her temperature only slightly above normal. She did not look very ill; the tongue was slightly coated; there was no palpable enlargement of lymphatic glands. As the splenic dulness was only slightly increased, and the mother of the child stated that the patient had been ill for fully two weeks, plague was not suspected. The case was looked upon as possibly a mild case of typhoid, and instructions given to report to Six Companies in case she got worse. She was not visited again during life. It was a surprise to hear of her death, and upon inspecting the body, though no external signs of plague were visible, it was deemed advisable to make at least a bacteriological examination of the spleen. This was done, but under marked protest from the child's relatives. The result showed that the child was actually alive with bacillus pestis. (Vide, laboratory case 7.)

Death 10. (Inspected Tuesday, February 12, 1901.) Ung Ah Buck, æt. 45, found dead at Wing Hai's undertaking establishment on Sacramento St. This man had been seen alive and examined by Dr. Barker on the previous day, who diagnosed the case intra vitam, as one of cervical bubonic plague. When seen alive he was in a room upstairs in the rear of 921½ Dupont Street, opposite St. Louis Alley. The man was sitting up, but looked extremely ill, his face was pale, cyanotic, and anxious looking. His voice was very feeble, but his intelligence seemed almost unclouded, and he was able to carry on a conversation, though with difficulty, with the interpreter. The friends stated that he had at times wandered in his talk. He was under the care of Dr. Mather. The patient stated that he had been ill for two weeks. His neck had been swollen for one week, and he regarded the condition as quinsy. With the aid of a tongue depressor the throat was examined. The fauces were swollen and reddened, the swelling being very marked in the left side. The left palatine tonsil was much enlarged, and showed on its surface a grayish-white patch the size of a dime. The reddening in the throat was general, and there was less local injection than one ordinarily sees in diphtheria. The left side of the neck was brownish-yellow, having been painted over with a solution of iodin. Upon inspection and palpation marked bulging was found; this seems to be due to enlargement of the cervical lymphatic glands. The case was diagnosed as one of plague with cervical bubo. The man died next day, and a complete autopsy was made by Dr. Flexner. The pathological examination showed typical lesions of plague, and the bacteriological examination made by Dr. Novy demonstrated the presence of bacillus pestis. (Vide infra, laboratory case 8.)

Death 11. (Inspected February 14.) Baby 7 days old, found in undertaker's establishment on Clay Street, having died at 717 Sacramento Street; advised making of cover slip and cultures from umbilical stump and from spleen; reported negative as regards bacillus pestis.

Death 12. (Inspected February 15.) Ow Ah Lane, male, æt. 55, coolie who had worked at San Jose Junction, died at Kwong Chow Hospital, February 14, at 6 A. M. He had been ill for from six to seven months. No enlargement of lymphatic glands. Advised bacteriological examination of spleen. Reported negative as regards bacillus pestis.

Death 13. (Inspected February 16.) Male; body found at Quong Fook's undertaking establishment. Slight swelling in right groin. Pathological examination negative as regards plague. No bacteriological examination made.

It will be noticed that of thirteen deaths which came to our attention, occurring from February 5 to February 16, inclusive, six were undoubtedly due to infection with plague. A seventh (death No. 8) may have been a case of plague which went unrecognized. The six undoubted deaths from plague occurred during the eight days from February 5 to February 12 inclusive. During the days from February 13 to February 16 inclusive, no new cases of plague or deaths therefrom were encountered.

Two of the deaths from plague occurred in a Chinese theater on Washington Street. The other four cases occurred singly in different parts of Chinatown. The accompanying may show the location of six cases observed by your commissioners and also of those which have previously been regarded as plague by the city board of health.

The study of cases during life and the inspection of bodies after death proves that it is often difficult and under certain circumstances impossible to make a diagnosis of plague. even post mortem, without bacteriological examination. In outspoken bubonic cases there will be little if any difficulty in diagnosis, either intra vitam or post mortem, provided the observer has had sufficient experience with the disease, but in the absence of primary buboes, the unskilled observer will miss practically every case, and even the practitioner who has had much experience with plague may be deceived. Your commissioners feel sure from experience with plague in Hongkong, India, and San Francisco, that once it is established that plague exists among the Asiatics of a town, every Asiatic who has fever should be suspected as a case of infection with plague until the disease is proven to be other than plague, and every dead body be treated as a plague cadaver until bacteriological examination of glands, lungs, and spleen (including animal inoculation), has proven the absence from the body of the bacillus pestis. Only by such caution will it be possible to avoid missing actual plague cases. In the following table are given the deaths per month occurring from all cases among the Chinese during the past four years as recorded by the city health board. As data regarding the exact population of Chinatown at different times are not obtainable, it is difficult to institute comparisons of the mortality among the Chinese with that among the white. It is obvious, however, that at no time during the past four years has the mortality rate among the Chinese increased to such extent as to in itself cause alarm.

MORTALITY AMONG CHINESE OF SAN FRANCISCO, 1897–1901.

Months.	1897	1898	1899	1900	1901
January	37	35	46	64	45
February	46	36	39	48	...
March	38	46	37	47	...
April	35	41	33	30	...
May	27	34	36	42	...
June	30	21	46	25	...
July	39	25	34	38	...
August	35	47	43	19	...
September	45	27	35	27	...
October	36	53	44	32	...
November	39	66	37	34	...
December	23	46	48	32	...
Total	430	477	478	438	45

The Pathological Anatomy of the Cases of Bubonic Plague Met with in San Francisco.—1. Human cases.

2. Experimental inoculations.

In the study of the pathology of the cases of plague met with among the Chinese in San Francisco, a number of disadvantageous circumstances were contended with. In the first place, owing to the peculiar prejudices of this people, prejudices born especially in their religious beliefs and practises, permission for post mortem examinations is given with great reluctance. The opposition to all mutilation of the bodies of the dead is so great that the consent for autopsies was obtained only after assurances that the examinations would be limited strictly to the actual necessities for the establishment of the diagnosis of the disease.

In the next place there is no public mortuary in San Francisco, to which the dead bodies were, or could be carried. Such examinations as were made were conducted in the narrow limits of a dimly-lighted alcove in an undertaker's shop, or in the even worse habitations where the dead were found.

Under these circumstances the post mortem examination left something to be desired on the score of completeness, although in every instance the important question whether death was caused by plague was answered definitely.

The majority of the dead did not exhibit well-marked buboes. Careful palpation usually was required in order to discover swellings and œdema of the groin. In all cases in which inguinal buboes were suspected or discovered, incision was performed, and the diseased gland and periglandur tissue, if present, removed.

With one exception (case 3) complete autopsies were not made. In all cases, however, the spleen was exposed and examined, and parts removed. The tissues removed at autopsy were examined in three different ways: (1) Cultures upon agar-agar and cover-slips were made at once after removal. (2) The tissues were taken to the laboratory, where additional cultures and cover-slips were prepared and examined. (3) Guinea-pigs were inoculated with portions of the tissues. Finally portions of the tissues were placed in alcohol for future study.

Human Cases.—Case 1. Chom Ah Chou, autopsy February 5, 8 P. M.; examination was made in the presence of one of us (Flexner) by Dr. Kellogg. The examination consisted in exposing and removing the inguinal and femoral glands on both sides. Incisions were made deep into the subcutaneous tissue, extending from Poupart's ligament about one-third the length of the thigh. The tissues on the left side were swollen edematous; the edema was sero-hemorrhagic in character, and the lymphatic glands were hemorrhagic and greatly swollen. On the right side, the edema was less marked and the glands, while distinctly enlarged and reddened, were less altered than those of the left side. Sections of these glands showed them to be uniformly hemorrhagic and swollen, and to contain frequently necrosis visible to the naked eye. The spleen was fully twice the normal size; it was softer than normal, the capsule was wrinkled, and the color was deepened.

The further examination of these tissues was made after removal to the laboratory, and participated in by Drs. Barker and Novy. The examination consisted in: (a) Study of cover-slips stained in anilin dyes and treated by Gram's method. (b) Preparation of cultures upon agar-agar separately by each member of the commission. (c) Inoculation of guinea-pigs with portion of tissue from the glands and spleen. (d) Preservation of tissues in alcohol for future study.

The examination of cover-slips from the glands, periglandular tissue, and spleen showed large numbers of bacilli decolorizing by Gram's method, and presenting the morphology of the bacillus pestis.

Case 2. Lee Kee; autopsy February 5, 9 P. M., in the presence of Dr. Flexner, performed by Dr. Kellogg. No evidence of plague.

Case 3. February 6. Lum Hong Yuen; autopsy made in Main Fook's undertaking shop, Drs. Kellogg, Flexner, and Novy present. Upon incising the right groin from Poupart's ligament to the beginning of the middle third of the thigh, sero-hemorrhagic periglandular edema and uniformly enlarged and reddened glands were found. The amount of fluid was considerable, although there was enlargement of all the glands; some of them reached the size of a horse chestnut. On section these were of deep red color and soft consistence. Necroses were present. The spleen was enlarged to fully double the normal size; it was softened, and of a deep bluish-red color. Cultures and cover-slips were made at once by Dr. Novy, and the excised tissues taken at once to the laboratory, where additional cultures were made, cover-slips examined, and animals inoculated. The cover-slips showed large numbers of bacilli, having the morphology and staining properties of bacillus pestis.

Case 4. February 6. Fong Shea Shong; autopsy by Dr. Kellogg, in the presence of Drs. Novy and Flexner. No evidence of plague.

Case 5. Wong Chi Lui; February 7; autopsy by Dr. Barker, 6 P. M.; Drs. Novy and Kellogg present. On inspection there was a swelling in the left inguino-femoral region, which on incision revealed enlarged glands about the saphenous opening and in the groin. The largest gland had the size of an English walnut, and was a dark reddish brown color; it was soft and juicy in consistency and mottled with hemorrhages and grayish-white patches of necrosis. The less swollen glands were markedly injected, and contained hemorrhages. Periglandular tissue was very edematous, the fluid running freely from the incision. The spleen was about twice the normal size, soft and friable. Cultures were made at once by Dr. Novy, and cover-slips about one hour later at the laboratory, where at the same time animals were inoculated with portions of the tissue. The cover-slips from the spleen and the glands showed bacilli, presenting all properties of bacillus pestis.

Case 6. Tom Sheong; February 10; autopsy by Dr. Kellogg, Drs. Barker and Novy being present. There was a slight swelling in the right inguino-femoral region, which on incision revealed slightly edematous subcutaneous tissue with slight enlargement of the glands. The largest gland had the size of a filbert, and its surface was dark and hemorrhagic. On section it presented distinct hemorrhage; the spleen was enlarged, soft and friable. The examination of the groin showed that the hypodermic puncture made for the withdrawal of fluid for diagnostic purposes during life had failed to enter a lymph gland. Cover-slips from the spleen and glands showed large numbers of bacilli having the characteristic properties of the bacillus pestis.

Case 7. Foong Ah Fong; February 12; autopsy by Dr. Flexner, Dr. Barker being present. The spleen only was examined; the organ was enlarged to about twice the normal size, and was diminished in consistence. Cover-slips showed a very small number of bacilli of the size of bacillus pestis, although the characteristic polar staining was not observed. Cultures were made, and a portion of the spleen was examined.

Case 8. Ng Ah Buck; autopsy February 12, at noon, at the undertaking shop of Wing Nei, by Dr. Flexner, Drs. Novy, Barker, Kellogg, and Wilson being present. The left side of the face and neck presented a marked diffused swelling, extending from the angle of the jaw backward to the sterno-cleido mastoid muscle and below, almost reaching the clavicle. On incising this region the parotid gland was first reached. This organ presented a normal appearance. After dissecting away the parotid gland a group of greatly enlarged, deep glands surrounding the carotid artery and jugular vein came into view. The periglandular tissue was infiltrated with bloody fluid, and presented a sodden appearance. The enlarged glands and portions of the surrounding tissue were excised; the former were found to be swollen (several reaching the size of an English walnut), and to be wholly altered in appearance and consistence. In color they were a deep purplish, and on incision a hemorrhagic fluid exuded; opaque points of necrosis were also present. The general subcutaneous fat was well developed; there was no general edema. Peritoneum appeared smooth and glistening; there was no excess of fluid in abdominal cavity, and the abdominal glands were not noticeably swollen. The spleen was enlarged to fully twice its normal size; it presented a purplish color and its consistence was diminished. The pleural cavities were dry. The lungs retracted moderately upon removal of the sternum. The lower lobes of the lungs were congested, but no consolidation was made out; no other abnormality was observed in the body. The organs and tissues at this autopsy, consisting of the enlarged cervical glands and spleen, were taken to the laboratory, where cover-slips, cultures, and animal inoculations were made. The cover-slips from the spleen showed large numbers of bacilli, having the morphology and staining properties of the bacillus pestis. The cover-slips from the glands differed in their appearance. In some instances, there were present large numbers of bacilli similar to those in the spleen, together with a few diplococci or short chain of cocci. Other cover-slips showed, besides the organisms, a bacillus having the morphology of the bacillus diphtheria.

Experimental Inoculation.—The animals used for experimental inoculation were half-grown and grown guinea-pigs. In order to guard against accidental infection of the locality, the animals were placed in glass jars, which in turn were placed in large crocks, the latter having been covered with wire-netting covers, upon which earthenware covers were placed. When an animal succumbed to the inoculation, it was carefully removed from the jar and immersed in 1-1000 sublimate solution. The jar itself was filled with a similar sublimate solution, and the two left in contact for several days. After subjecting the animals to autopsy, they were placed in the steamer and thoroughly steamed, after which the body was incinerated. Such portions of the tissue as were preserved for microscopical study were placed at once in 95 per cent alcohol.

Inoculations were made subcutaneously with bits of tissue from the human cases and pure cultures of bacilli obtained from these sources. The usual procedure was to inoculate at least two animals from each human case, one with portions of the spleen, and another with portions of the lymph gland. The cultures used were derived indifferently from the spleen and from the glands.

The inoculated animals can be separated into groups, depending upon the results of the inoculation. These results in turn depended upon the virulence of the material, tissue, or culture inoculated, upon which also depended the duration of life following inoculation.

It is important to state the characteristic lesions were obtained from inoculated material derived from every case in which bacilli were found in cover-slips, including case 7, in which very small numbers of the bacilli were detected in the spleen.

Types of Infection.—The animals inoculated early in the course of the investigations died at periods varying from forty hours to days. Those inoculated with cultures early in the studies but which had not succumbed were etherized at the close of the work, and subjected to post-mortem examinations. According to the period of survival and virulence of the inoculated material the appearance denoted (a) bacteremia without macroscopical localizations in the organs, and (b) focal, nodular localizations in the internal organs. In all cases marked local lesions at the site of inoculation and in the adjoining tissues occurred.

Local Lesion.—At the point of inoculation the tissue, skin, subcutaneous tissue, and sometimes muscle were infiltrated with pus cells, and presented a yellowish focus of necrosis. From this area as a center, the subcutaneous tissue, sometimes of one side, but frequently of both sides, was occupied by gelatinous hemorrhagic infiltration. The lymphatic glands of the inguinal and axillary regions were distinctly enlarged, even in the acute cases. In those animals which died after a longer period or were killed from six to seven days after inoculation, the regional lymphatic glands were much enlarged, hemorrhagic, and even necrotic. The inguinal glands were, as a rule, more swollen that the axillary. Cover-slip preparations from the local lesions, necrotic area, subcutaneous edema, swollen lymph glands, showed large numbers of bacilli, having the characteristic morphology, staining, and reaction to Gram's method of the bacillus pestis. Cultures from these sources gave positive results. In one animal in which the inoculation was made with a culture, the animal being etherized on the third day, there were slight local lesions only, no involvement of the regional lymph glands, and no visible lesions in the internal organs having been observed. A small number of characteristic bacilli were found in cover-slips made from the site of inoculation.

The Spleen and Liver.—In the instance of rapid death (bacteremia) the spleen was moderately large, its color was deepened, its consistence decreased, but no focal lesions were visible to the naked eye. Cover-slips and cultures showed numerous bacilli agreeing in characteristics with those of bacillus pestis. In this class of cases, the other organs fail to show focal lesions. The lungs appeared mottled only, and a few small necroses existed in the liver; numbers of bacilli were contained in all the viscera and in the heart's blood. The focal lesions in the spleen consist of grayish-white nodules, larger than a millet seed in size, covering the surface (within the capsule), and occupying the substance of the organ. When the nodules are numerous, as *e. g.,* in animals succumbing from the sixth to the eighth day or after etherization at that period, when there has been a marked local reaction, the spleen is greatly enlarged, perhaps to five or six times its normal size, and its color is pale. Cover-slips and cultures show a very large number of characteristic bacilli if the animal has died spontaneously, while if killed the number of bacilli upon the cover-slips and cultures is far less. The liver invariably showed lesions when death had been delayed a few days. The common ones were focal necroses of varying size; they were yellow in color, and in size ranged from that of a pin's point to linear and wedge-shaped areas three to four millimeters in length. Only rarely did whitish nodules similar to but smaller than those appearing in the spleen occur. The best example of nodular lesions in the liver was observed in an animal inoculated with a culture derived from case No. 1, the guinea-pig having been etherized on the eighth day after inoculation.

The Lungs.—The lungs presented a variety of apearances, only one of which was characteristic. Sometimes they showed no microscopical lesion; not uncommonly they were mottled, and presented small ecchymoses beneath the pleura; rarely they contained scattered whitish nodules resembling those of the spleen, except that they were smaller, and surrounded with a zone of recent hemorrhage. No effusion into the pleuræ were noted.

Subserous Hemorrhages. — These were common, especially in the peritoneum, where they occurred beneath and within the serosa of the large intestine, and in the pleura covering the lungs. They were usually small in size, although at times through confluence they reached larger dimensions. They did not give rise to an exudate or effusion into the serous cavities. The other organs, except the adrenal glands, showed no especial changes to the naked eye. The adrenals were uniformly congested and often very dark in color and hemorrhagic. The central nervous system was not examined.

Bacteriological Examinations.—Case 1. Chun Ah Chow, 814 Washington Street, autopsy February 5. The spleen and left femoral glands were examined. These organs were found to contain enormous numbers of bacilli, having the morphological and tinctorial properties of bacillus pestis. Thus, the short, thick, oval rods gave a bipolar stain with Loeffler methylene blue, or with carbolic thyonin, and were decolorized by Gram's method. Their pathogenicity was determined by inoculation of portions of the spleen and of pure culture subcutaneously into guinea-pigs. Agar streaks made from the perfectly fresh organs showed very small white moist isolated colonies, having all the appearances of those of bacillus pestis. This was further confirmed by microscopic examination of living and stained preparations of such cultures. A few rapid growing colonies, due to other forms of bacteria, were present. Sub-cultures were made in glucose, gelatin, bouillon, agar, salt agar, and milk. On agar Petri dishes, in 24 or 48 hours in the incubator, small white or grayish moist colonies developed. These had finely granular centers, with a smooth, sharply-defined border. The sub-culture in glucose gelatin developed a slight growth along the line of inoculation. On the surface the growth, spread slightly, was grayish, moist in appearance, and had a slightly wavy raised border. No gas was formed. In bouillon, in 24 hours, a diffused cloudiness was produced. The sediment was very slight, scarcely appreciable. Subsequently a faint, stringy deposit formed. The surface remained perfectly clear, with a trace of a ring or collarette. The streak culture on nutrient agar presented a moderate grayish-white moist growth, which, when touched with a platinum wire, could be drawn out into strings. On 5 per cent salt agar the growth is very slight, scarcely visible, and shows the peculiar roundish or pyriform involution of the pest bacillus. In milk the organism grows without producing any visible change in the medium. The absence of gas production and coagulation of milk, together with the macroscopic and microscopic characteristics, agreed fully with the bacillus pestis. The effects on animals have been described in a preceding part of the report.

Guinea-pig No. 1 was inoculated under the skin with a portion of the spleen from the above case. It died in 36 to 40 hours. Cultures made on agar from the spleen and heart-blood gave almost pure growths of the pest bacillus. Direct examinations of the organs showed enormous numbers of typical plague bacilli.

Guinea-pig No. 2 was inoculated subcutaneously with a pure culture obtained from the gland of the above case. The animal died in three days. Plague bacilli were very numerous in the spleen, and were also present in the heart's blood.

Case 3. Lum Hong Huean, 38 Ross Alley, autopsy February 6. Linear preparations from the spleen showed large numbers of short thick rods, chiefly single; some oval or roundish forms were also present. The organisms stained readily with Loeffler's methylene blue or with carbolic thyonin. In the latter case the bipolar staining was excellent. The organisms were completely decolorized by Gram. Cover-glass preparations from the gland likewise showed very numerous bacilli, occurring singly, taking the bipolar stain, but not that of Gram. Agar cultures were made at the time of the autopsy in the undertaker's shop of Main Fook. The cultural and morphological characteristics were the same as those observed in Case 1.

Guinea-pig No. 3 received subcutaneously a portion of the spleen from the above case; died in 5½ days. On autopsy the spleen was found markedly enlarged, full of white nodules, which were also present in the liver and in the lungs. Cover-glass preparations from the spleen showed enormous numbers of bacilli, having all the characteristics of bacillus pestis. Agar slants were inoculated with the heart's blood and spleen of this animal, the former yielding a slightly contaminated growth, but the culture from the latter was pure.

Case 5. Wong Chi Lui, 21½ Waverly Place, autopsy February 7. Streak preparations from the spleen showed very numerous pest bacilli, apparently in pure culture; the predominating form was the short thick rod, although some oval or roundish forms were present. Loeffler's methylene blue and carbolic thionin stained the bacilli readily, demonstrating the characteristic bipolar form. The organisms were completely discolored by Gram. Similar preparations made from the left femoral glands show fewer organisms, but these in form, size, and staining reactions are identical with those found in the spleen. Cultures made on agar developed very slowly; on subsequent transplantation, however, the growth was more rapid, more abundant, and typical of that of bacillus pestis.

Guinea-pig No. 4 was inoculated subcutaneously with a portion of the gland from above case. Death resulted in 3½ days. Bacilli were numerous in the spleen, and corresponded in characteristics to those of plague bacilli.

Guinea-pig No. 5 was inoculated subcutaneously with a portion of the spleen; it was found dead 3½ days later. Numerous plague bacilli were found in the spleen, heart's blood, and glands. Agar streaks from the heart's blood gave numerous small colonies of pest bacilli, with a few larger colonies due to foreign organisms. The spleen gave numerous isolated small moist colonies, apparently a pure culture of the plague bacillus. Agar streak plates were made at the same time, and gave in 24 hours numerous minute colonies.

Guinea-pig No. 6. A portion of the spleen from this case was inoculated into the peritoneal cavity. Death resulted in 4½ days. Pest bacilli were abundant in the internal organs and in the glands. Agar streaks from the heart's blood gave a very limited growth, while that from the spleen was scarcely visible. In this and several other instances difficulty was experienced in starting the growth of the organism directly from the tissues. Once started, however, with subsequent transplantations, better results were obtained.

Guinea-pig No. 7 was inoculated subcutaneously with loopful of pure culture obtained from guinea-pig No. 5. It died in 2½ days. Autopsy revealed hemorrhagic edema, and cover-glass preparations of this showed pest bacilli mixed with numerous minute diplo and streptococci. The spleen was enlarged and soft, containing nodules, and on staining cover-slips therefrom enormous numbers of typical plague bacilli, apparently perfectly pure, were found. No diplococci were present.

Case 6. Tom Shom, 814 Washington Street, autopsy February 11. During life some fluid was aspirated by means of a sterile syringe from the swelling in the right femoral region, and transferred to the nutrient agar. Blood was also drawn from the lobe of the ear and planted on agar. Stained preparations made from these specimens failed to demonstrate the presence of any organism. Cultures developed pyrogenic cocci, but failed to give any indication of pest bacilli. On autopsy, the femoral glands, though characteristic of plague, were found not markedly enlarged. It was evident that the aspirating needle when introduced had missed the gland proper, and the failure to isolate the pest bacillus during life in this case can thus be explained. It should be noted that the peri-glandular tissue was but very slightly involved. Streak preparations made from the hemorrhagic gland showed relatively few plague bacilli. A long, thick bacillus was present in small numbers; Gram's stain was negative. Streak preparations from the spleen showed the pest bacillus to be present in large numbers and apparently pure. The organisms occurred singly, gave the bipolar stain, and were decolorized by Gram.

Guinea-pig No. 8 was inoculated subcutaneously with a portion of the spleen from this case. Six and one-half days later, though healthy in appearance, it was killed. A circumscribed caseous local lesion was found; there was a slight glandular enlargement on the same side. The spleen was slightly enlarged, and showed white nodules; pest bacilli having the short rod and oval form were present in small numbers.

Case 7. Fong Ah Fong, 747 Sacramento Street, autopsy February 12. Streak preparations from the spleen revealed the presence of pest bacilli, although these were not very abundant; indeed, they were difficult to find in cover-slips. Typical bipolar staining rods and oval or roundish forms were, however, found; Gram's stain was negative. Streak cultures were made with the fresh spleen on agar slants, and at the same time agar plates were made. The agar streaks failed to give an appreciable growth, but on the plate a colony was found which corresponded to that of the plague bacillus. On microscopic examination it was observed to consist of small, short, oval, non-motile rods, which decolorized by Gram. The colony transplanted to agar gave a typical growth of pest bacilli, and this culture was used to inoculate guinea-pig No. 10.

Guinea-pig No. 9 received a portion of the spleen of Fong Ah Fong subcutaneously. It died in 4½ days. The spleen contained enormous numbers of pest bacilli, which stained in the usual bipolar manner, and were decolorized by Gram. The heart's blood likewise contained the organism. Cultures were made on agar from the spleen and heart's blood of this animal; both gave numerous small moist colonies of bacillus pestis.

No.	Name.	Age.	Sex.	Color.	Place of Death.	Date of Death.
						1900
1	Wing Chut King	41	Male	Mongolian	1001 Dupont St.	March 6
2	Chu Chan Ging	32	Male	Mongolian	705 Sacramento	March 17
3	Ng Ach King	47	Male	Mongolian	705 Dupont	March 17
4	Lee Lun King	...	Male	Mongolian	Oneida Place	March 18
5	Lan Au	38	Male	Mongolian	St. Louis Alley	April 24
6	Lin Fa Mung	16	Female	Mongolian	739 Clay	May 11
7	Chu Sam	38	Male	Mongolian	717 Jackson	May 11
8	Chin Moon	16	Female	Mongolian	731½ Commercial	May 13
9	Herr Woon Jack	53	Male	Mongolian	740 Pacific	May 14
10	Dang Hong	40	Male	Mongolian	706 Pacific	May 29
11	Chen Kuey Kim	49	Male	Mongolian	819 Clay	June 2
12	Jay Mau Tong	60	Male	Mongolian	759 Clay	June 9
13	Lee Wing Tong	40	Male	Mongolian	767 Clay	July 6
14	Wm. Murphy	34	Male	White	427 Dupont	Aug. 11
15	Han Tan	29	Male	Mongolian	900 Dupont	Aug. 15
16	Lea Do Hen	50	Male	Mongolian	710½ Dupont	Oct. 5
17	Chin Yen	37	Male	Mongolian	767 Clay	Oct. 10
18	Tai Dong Leong	39	Male	Mongolian	705 Clay	Oct. 14
19	Young Moon Li Chee	30	Female	Mongolian	802 Dupont	Oct. 31
20	Young Wah Noui	9	Female	Mongolian	802 Dupont	Nov. 1
21	Anne Roedde	28	Female	White	Pacific Hospital	Dec. 3
22	Lee Ho	30	Male	Mongolian	844 Washington	Dec. 7
						1901
23	Chun Wey Lung	38	Male	Mongolian	720 Jackson	Jan. 6
24	Leam Wing How	30	Male	Mongolian	833½ Clay	Jan. 15
25	Angella Colombo	...	Male	White	5 Lafayette Place	Jan. 15
FOLLOWING OBSERVED BY COMMISSION.						
26	Chu Ah Chon	44	Male	Mongolian	814 Washington	Feb. 5
27	Lum Hong Yuen	37	Male	Mongolian	28 Ross Alley	Feb. 6
28	Wong Chi Lin	50	Male	Mongolian	15½ Waverly	Feb. 7
29	Tom Shon	51	Male	Mongolian	814 Washington	Feb. 10
30	Ng Ah Bock	45	Male	Mongolian	St. Louis Alley	Feb. 11
31	Foong Ah Fong	12	Female	Mongolian	747 Sacramento	Feb. 11

NOTE.—Particular places of death of following numbers as indicated below:—

No. 8, Pacific Hospital, Stockton and Chestnut Streets.
No. 13, City and County Hospital.
No. 14, City and County Hospital.
No. 21, Children's Hospital.
No. 25, City and County Hospital.

Case No. 25 died January 6, 1901.

Guinea-pig No. 10 was inoculated subcutaneously with the agar culture mentioned above. It was killed 2½ days later. The spleen showed only a few, but characteristic, pest bacilli; under the skin there was but slight local change, and a few typical bacilli were found.

Case No. 8. Ung Ah Buck, St. Louis Alley, autopsy Feb. 12, cover-slip preparations from the cervical lymph glands showed the presence of several distinct organisms. The short, thick, oval forms of the pest bacillus were present in small numbers; with them was associated a large, thick bacillus; there were also present bacilli resembling the bacillus diphtheriae, and a diplococcus closely resembling that of Fraenkel. The pest bacilli gave the usual bipolar stain with menthylene blue and with carbolic thionin. Specimens stained by Gram's method showed deeply stained diplococci, the other forms being decolorized. Smear preparations from the spleen showed many organisms resembling the bacillus pestis morphologically.

Agar streaks from the fresh spleen gave a number of discrete moist colonies, which consisted of large, oval, non-motile bacillus, occurring singly and only occasionally in pairs. The streak cultures from the cervical gland also gave numerous isolated colonies. In both cases the cultures obtained were apparently perfectly pure, and agreed in every respect with those of plague bacilli. The other bacteria seen in cover-slips did not grow. Agar plates yielded the same results.

Guinea-pig No. 11 was inoculated subcutaneously with a small portion of the spleen from the above case. In about 3 days the animal was very sick, and was finally killed 5½ days after inoculation. Bacillus pestis was found in the spleen and to a less extent in the blood.

The bacteriological examination of the foregoing six cases has, therefore, demonstrated the presence of the bacillus pestis in each.

(Signed)
Simon Flexner,
F. G. Novy,
Lewellys F. Barker.
San Francisco, Cal., Feb. 26, 1901.

AN ADDRESS.

By W. J. Maupin, M. D., Fresno, Cal.

Delivered at the Meeting of the San Joaquin Valley Medical Society, March 12, 1901.

On this, the eleventh semi-annual session of our organization, it is, indeed, a source of pride and gratification to me to be honored with election to the highest office it is in your power to bestow. There are some occasions when action most truly speaks louder than words, and your action has been of that kind which appeals to the heart, and causes the tongue to falter.

I am sure you will pardon me when I say that the Medical Society of the San Joaquin has all the signs and promise of a brilliant future. In the few years during which it has existed this society of ours has done wonders toward bringing about closer relations between members of a profession who so often and so urgently stand in need of each other, whether as to counsel or sympathy. With us it is, in truth, a case of life and death. Our names are ever at stake; we are the sport of those who are ever ready to profit by our troubles rather than our experience, and it is surely essential that we should stand together in the hour of trial as cordially as we meet, once and again, at the social board. The greatest wits in the world have directed their shafts at us, but so long as we stand firm, and stand united, we can defy ridicule even as we defy malice or open enmity.

I repeat that it is of the utmost importance that members of the medical profession should be firmly and widely organized. It so happens that I am president of the Fresno County organization, and I know that such an organization, pleasing as it is, socially, and instructive as it is in other respects, lacks the influence which is exerted by a body of men knit together in the cause of the greatest of the sciences—the science of life. It has often seemed to me that if the same consciousness of the power of united effort were possessed by members of the learned profession which is so keenly manifested in our commercial organizations and trusts, we should soon see the results in a liberal contribution of our best thoughts in papers and contributions which are now only too frequently wrung like a forced tribute from gifted members of the profession. I am sure I am not likely to be accused of casting reflections on any one here present, but I do know that the secretaries of medical organizations often have the greatest difficulty in getting members to contribute papers, and what is still worse, it occurs time and time again that written requests for papers to be read at the next meeting receive no response at all. Compare this apparent apathy with the eager readiness of teachers and others to contribute papers at meetings of institutes. I need say no more, and I will be glad indeed if this hint produces good effect hereafter.

I desire to pay a passing tribute to my friend, Dr. Felton, of Hanford, whose services as the prime mover of this organization and as a friend and counselor have been so valuable in the past.

It is both unnecessary and undesirable for me to make a lengthy address on an occasion of this kind. We have before us a large volume of business, and a number of valuable contributions on matters of the highest personal and scientific interest. I will, therefore, close with this brief remark,—that in tendering to you all the assurance of my gratitude to you for the honor you have conferred on me in electing me to preside over your councils, I can also voice the sentiments of the people of Fresno in bidding those of you who come from other towns a hearty welcome to the queen city of the San Joaquin Valley.

THE ETIOLOGY OF THE SKELETAL DEFORMITIES OF RACHITIS.

By Harry M. Sherman, A. M., M. D., San Francisco.

It is certainly probable that some deformity is associated with cases of congenital rachitis in a majority of the cases; but as a case of the disease, as a congenital condition, has never presented itself to me primarily, and as I have seen but one, which occurred in the practice of Dr. Ross, of Sacramento, I will make no remarks concerning it.

As regards the deformity in the acquired cases of rachitis, it is but repeating old truths to say that it occurs because of the structural weakness of the bone. This weakness is due to erratic and tardy ossification of the cartilage at and in the epiphysis, and to irregular bone formation by the periosteum. The result is a bone with two much organic matter and too little lime salts, a bone with much elasticity but with feeble power of resistance to any force continually working in one direction. The action of any such force, therefore, working in a direction to produce a deformity, is very apt to do so; and such force may be developed by the muscles in their normal relation to a structurally weak bone, or by too great superincumbent weight, or by pressure by some external object, or by gravity. Inasmuch as the two sides of the body and the opposite limbs are usually symmetrically developed and are exposed to the same or similar forces, the skeletal deformities are usually symmetrical, or we have deformities of symmetrical location, but sometimes in different directions.

In what is here said consideration will be given only to those types of the disease which are ordinarily seen in California, and this will exclude at once the especially severe forms which are sometimes seen in eastern or European clinics; but it is still true that there are here not a few of the moderately severe types of the disease. Cranio-tabes is a manifestation of rachitis which is rarely seen here. I can recall one or two cases, certainly no more. That it is due to deficient ossification plus the pressure of the head on the pillow or on the bed is plain. Gravity, then, is one cause of the thin bone and the flattened occiput, the skull not being strong enough to bear its own weight and that of the contained brain. While cranio-tabes is not common, deformities of the skull are common. That most frequently seen is the somewhat flattened vertex, with the depression at the anterior fontanel, making, with the prominent frontal bones, the square head of richitis. Next we get the flattened occiput, due to prolonged recumbency, and one or two cases have had the natiform skull, a groove running down from the vertex between the parietal eminences to the occiput (Fig. 1). Delayed union of the parietal bones and yielding of the unresisting tissue to atmospheric pressure must be the cause of this malformation. In all cases of cranial asymmetry I should suspect rachitis, and should look for evidences of its existence in other parts of the skeleton; but I can not speak on this particular matter from the standpoint of accurate observation.

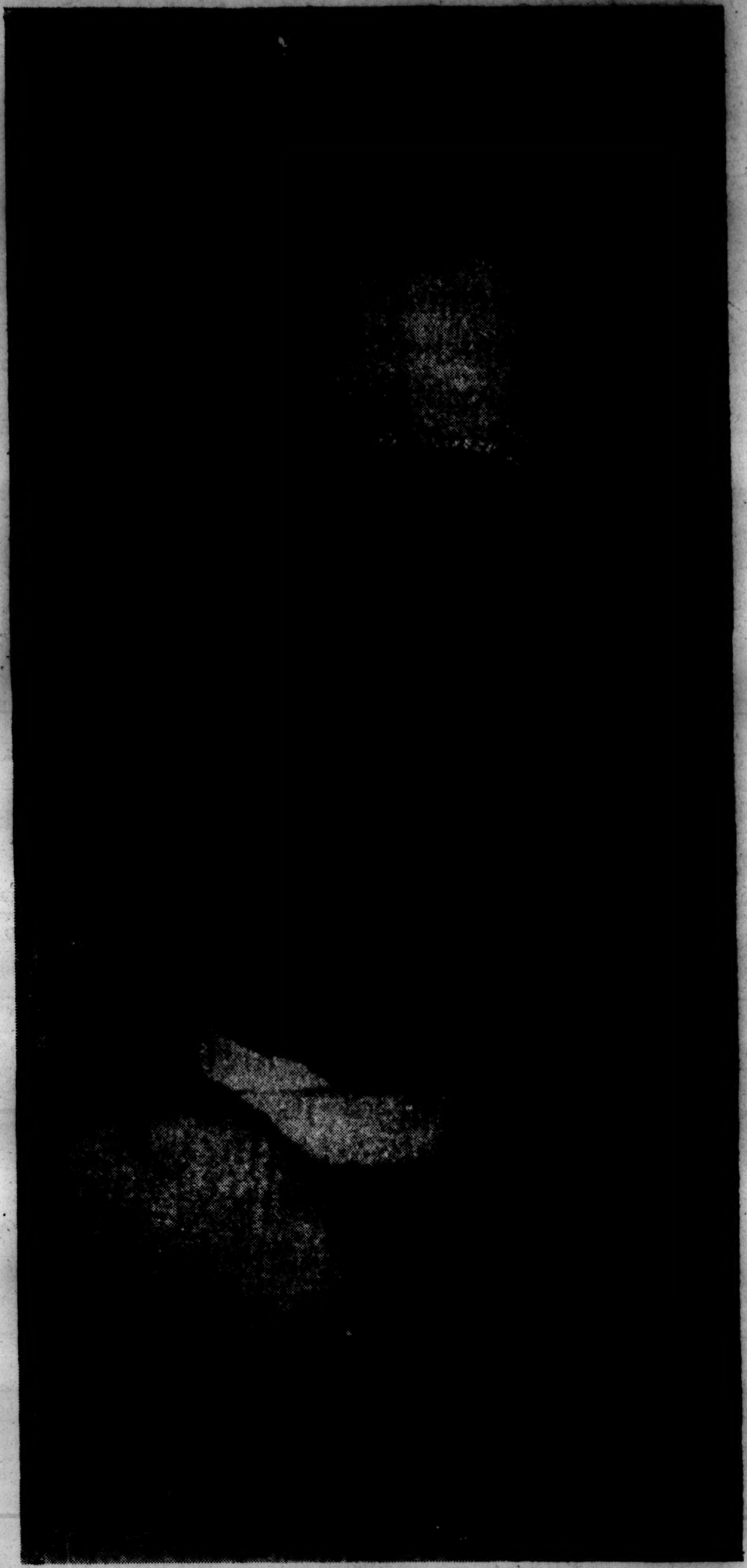

FIG. 1.
To show slight natiform head.

Deformities of the thorax follow well-defined rules. Generally speaking, the rachitic thorax is usually increased in its antero-posterior diameter and lessened in its transverse. To produce this change the ribs are curved rather sharply forward at or near their angles, and then follow a somewhat straight line forward and inward to the costochondral junctions, so that the mammary region is flat, the surface looking forwards and outwards. The costal cartilages themselves are a little prominent and the sternum is depressed. The more marked cases of this type, with the addition of a prominent instead of a depressed sternum, are the well-known cases of "chicken breast." Another type of the rachitic thorax is enlarged transversely, and is small antero-posteriorly, and these cases always have depressed sternums, and in them is also seen the Harrison groove, a groove that crosses the lower part of the thorax in front, about at the level of the ensiform cartilage.

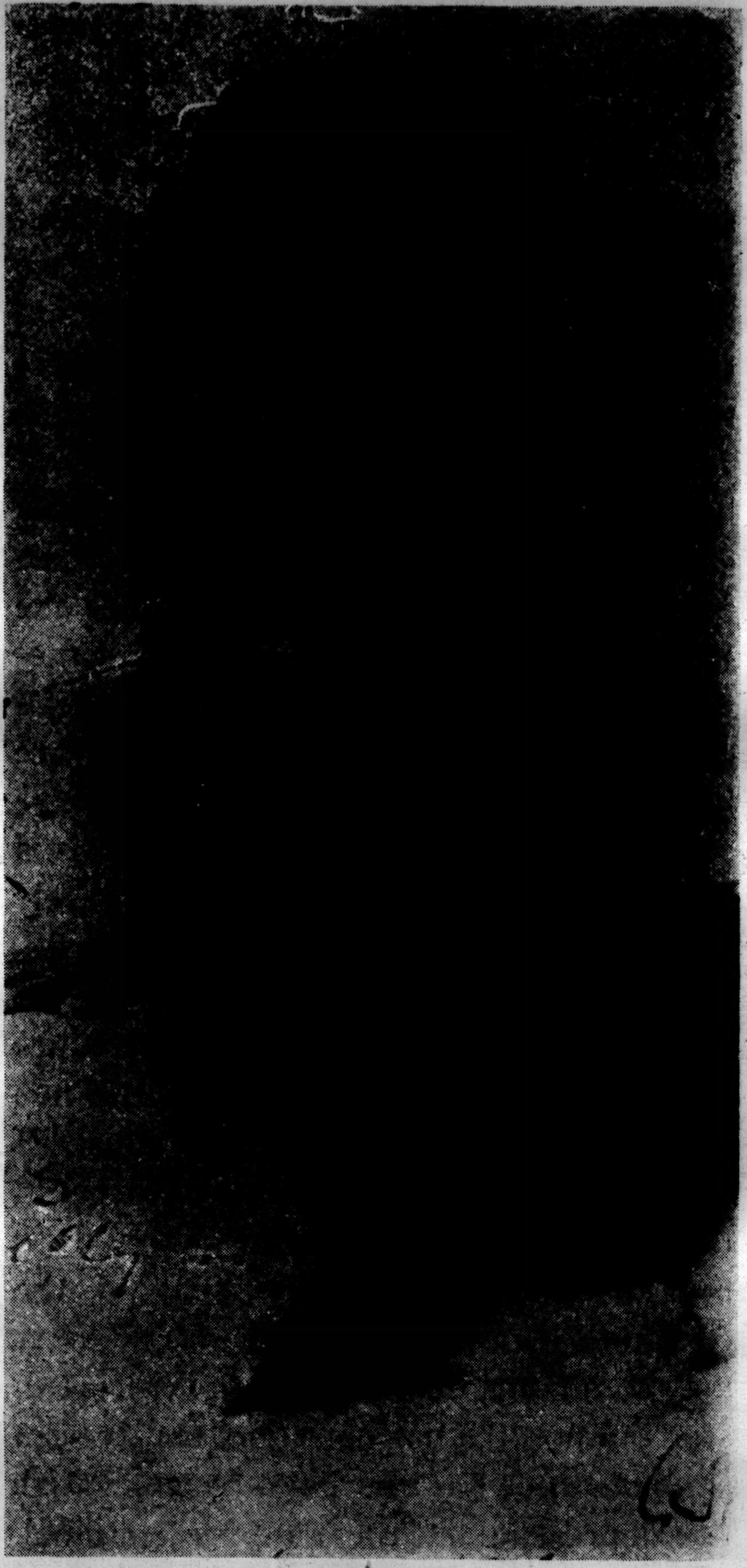

FIG. 2.

To show deformity at elbow (cubitus varus), curvature of forearm, enlarged wrist epiphyses, flat mammary region, prominent cartilages, depressed sternum, transthoracic (Harrison's) groin, flare of the lower ribs, big belly, and enlarged ankle epiphyses.

All the thoracic deformities are due to muscular force on one side and atmospheric pressure on the other, with some effect of the force of gravity. If the child has its rachitis early, and spends much time in the dorsal decubitus, it will get the broadening of the thorax and the lessening of its depth in the antero-posterior diameter. If the rachitis comes at a little later age, so that the child is already up, sitting and standing, the atmospheric pressure will flatten the ribs anterior to the angle, where they have less support from muscles, and, by so doing, will throw the anterior end forward, carrying the costal cartilages. Whether the sternum is prominent or depressed will depend on the costal cartilages; if they are strong enough the sternum will be carried forward with them; if they are weak the sternum will be depressed by atmospheric pressure. The transthoracic groove, Harrison's groove, marks on the outside the attachment of the diaphragm on the inside. As this muscle pulls, the resistance offered by the ribs is less than that offered by the distended abdomen, and instead of the abdominal contents being forced down, the ribs are drawn in; the lowest ribs are, however, tilted outward by the distended abdomen, and this gives them their flare, and makes the lower boundary of the Harrison groove. Ordinarily the deformities of the thorax are symmetrical, as rachitic deformities usually are, but on occasions they are not, and I have seen a few cases where a costochondral line was prominent on one side and not on the other, and this without the slightest curvature of the spine.

I pass by scoliosis as a deformity of a

rachitic thorax, though I believe it really is such, because the deformity itself outclasses its cause, and has to be treated under a heading of its own. I will say in passing that I never have seen a scoliotic that did not show obvious marks of a rachitis, so that the real form of the deformity of adolescence must be looked for in the dietary of infancy.

It is not common to see marked deformities of the arms and forearms, apart from the enlargement of the wrist epiphysis. Still in children who sit much and support the trunk partly on the arms, which are used as flying buttresses on either side—and this is a very common attitude (Fig. 2)—one may get outward bowing of the humerus, and also of the forearm. The bowing of these bones is due to superincumbent weight being too great for the bone to support. The curve in the humerus is determined by the natural curve in the bone and the fact that the axis of the head and neck is at an angle to that of the shaft, so that the line of force is not coincident with the axis of the shaft, but passes obliquely in regard to the shaft from the humeral head to the trochlea and capitellum (Fig. 3). This curve is convex outwards. In the forearm may also be a curve convex backwards, but the conditions of its causation are somewhat involved. The weight is passed from the humerus at the elbow to both radius and ulna, and with a downward and outward thrust. The radius has a support below against the carpus, but the ulna has not, its support coming only through the interosseous membrane from the radius. Between the restraint of this ligament and the thrust from the humerus the ulna is given a curve similar to the curve of the radius, that is, slightly convex backwards, and the curve of the radius itself is more or less increased. At the place of this curve the ulna is thickened, the posterior border running down from the olecranon being hypertrophied, and this is evidently a conservative act on the part of nature, the strengthening of a weak part. The elbows, from long work in this position, become varoid (see Fig. 2), and the natural obliquity of the forearm on the arm is lost, as it is in gunstock deformity after fracture above the condyles of the humerus. All these deformities are strictly analogous to those which occur in the lower limbs.

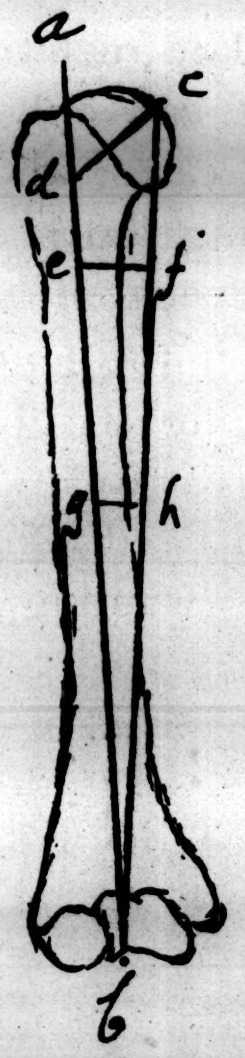

FIG. 3.
Humerus diagram.

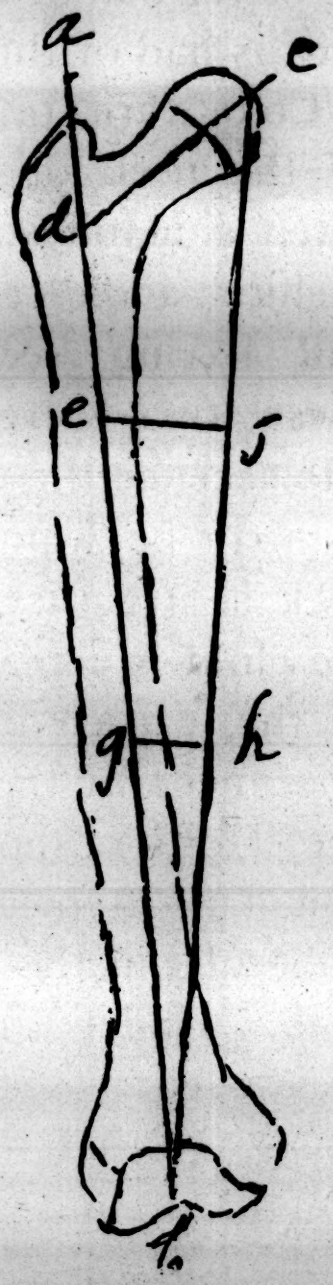

FIG. 4.
Femur diagram.

a, b—Axis of shaft. *c, b*—Line of force. *c, d, b*—Direction force must take in bone—perpendiculars on *c b* to *a b*, as at *f e* and *h g*, represent the outward thrust of the force at the points at which they are.

Deformities of the pelvis are rarely of such character as to attract the attention of any one but the obstetrician, and so I shall pass them by.

The deformities of the trunk and upper extremities are not of such great surgical interest, in so far as they do not usually require correction by surgical methods. The deformities of the lower limbs often do require correction, both because they are frequently of an extreme degree and also because they not unfrequently interfere with the functions of the part. Their correction, then, has both a cosmetic and practical value. The prevention of their occurrence is equally important, and this can be better planned and carried out if some idea is had of this causation.

Coxa vara, or the bending downward of the neck of the femur, is probably often a manifestation of late rachitis or rachitis adolescentium. I can only recall having seen three cases, and of these two were in young boys. In adolescence the other evidences of rachitis may be wanting, but if the femoral neck is structurally weak, the weight of the child is actually too great for it, and is the cause of the changed shape. Specimens of the bone are wanting, but one, Hoffa's, showed no diseased condition but atypical arrangement of the trabeculæ in the cancellous tissue of the neck. Under the pressure of the too great weight the neck bends down and twists, so that its bracket action is entirely lost, and the mechanical relation of the part is so altered that the function of the joint is much disturbed.

The shaft of the femur has a natural curve or spring, and it is the rule that in children who have other obvious rachitic deformities this curve shall be increased, so that the bone is palpably too near the surface in the middle of the thigh on the outer anterior aspect. If the child has been walking, the body weight has contributed to the deformity, but it exists in children who have never walked, and then is the result of muscular action. The obliquity of the femoral neck with the shaft (Fig. 4), and the natural curve of the shaft, make of the bone a bow, and the hamstring muscles and the adductor longus act as cords to this bow. Obviously their contraction tends to increase the sharpness of the curve of the bow. Fortunately the muscles partake with the bone in the general rachitic weakness, for otherwise we might have normal muscles pulling on a weakened femur, with the production of a pitiful deformity. This curve of the femur may be part of a general curve which reaches from the hip to the foot, the leg bones being curved on about the same radius. In this case the knee joint contributes also to the deformity, the relative length of the condyles being disturbed so that the outer is too long. This increased length is probably because of overgrowth of the outer condyle, due to the rachitic condition of the bone and the lack of pressure, for where the body weight is on such a leg, the force on the convex side of the leg is plainly tensile and not compressive; furthermore, the ligaments at the knee in these cases are always lax, so that there is actual separation between the outer femoral condyle and the outer tibial tuberosity when the child stands. This deformity is the common bandy-leg or bow-leg. The condition at the knee itself is genu varum.

The opposite condition at the knee, or genu valgum, or knock knee (Fig. 5), may occur, but it is never part of a general curve, though it may be one of many rachitic deformities. As is genu varum, so genu valgum is due to overgrowth of a condyle—the inner this time—and this overgrowth is also the result of the rachitic condition and the absence of pressure. In one or two instances I have seen a similar condition in the tibia, the inner tuberosity being the seat of the overgrowth, so that a tibial knock knee was produced (Fig. 5). In these cases there is usually a hypertrophy of the tibia by the growth of an auxiliary crest running downwards and forwards from the inner tuberosity, with the apparent intent of especially strengthening the bone. It is to be particularly noticed in these cases of genu varum and valgum that the deformity, so far as the position of the leg is concerned, quite disappears when the knee is flexed, only to reappear when the leg is extended. This is because the condyle, outer or inner, is increased only in its longitudinal dimensions, and not in its anterior-posterior, so that the tibia is in a perfectly normal position when it rests on the back of the condyle, and is only thrown into its oblique position when it is pressing against the end of the bone.

In the leg the bone may be bent on a transverse plane, so that it is bowed outward, or on an antero-posterior plane, so that it is bowed forward, or on any plane between these. The excurvation may be part of the general curve of the limb, or it may pertain to the leg bones alone, the femur not being markedly bent. It is primarily a persistence of the natural infantile curve of the bones, and its persistence is due to muscular action alone in the child who has not walked, and to this is superadded the body weight in the child who has walked. In those cases where the curve is wholly in the leg bones, or where the leg bones are badly curved while other bones are but slightly affected, the most common type is the outward curve, the excurvation of the leg; but an anterior curve does not infrequently occur, or any composite curve made up of transverse and antero-posterior elements is possible. At some place, usually in the lower half or quarter of the bone, the curve may be sharper, or it seems as if the outward thrust of a slightly curved femur may be focused at one point of a tibia, and increase the acuity of the curve at that point. It is more likely, however, that at this point there is more marked structural weakness, and that this fact is the one that decides the location of the special curve. The anterior curve is not so common, and it must, primarily, be due to superincumbent weight, but so soon as it is well developed the action of the muscles of the leg must tend always to increase its acuity. The point

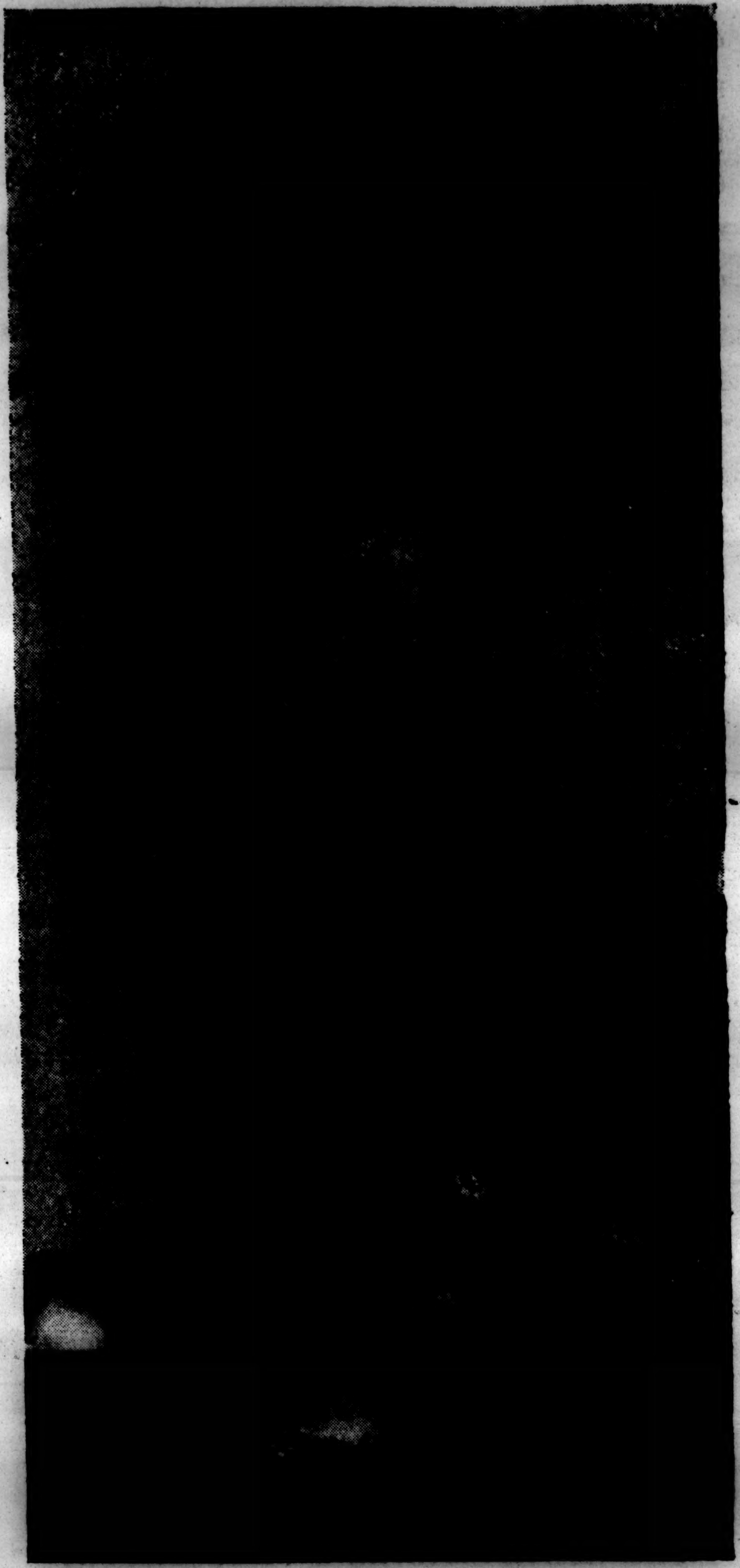

FIG. 5.

To show rachitic rosary, gun stock deformity at elbow, enlarged wrist epiphyses, knock knee (genu valgum), anterior curvature of tibia, flat foot.

of maximal curve is usually below the middle of the leg, and the bone at this point is very deep in its antero-posterior dimension, as if it had been especially reinforced in this way to antagonize the deforming force. This is quite what one would expect from developmental processes, viz., that tissues upon which special strain is put shall be specially strengthened for their work. I have never noticed this in excurvations, and have thought that its absence might be due to the fact that the fibula supplied, in the transverse curve, the necessary auxiliary force.

The rachitic child always has a tendency to flatfoot from structural weakness of muscles and ligaments (Fig. 5), but this tendency is increased by the outward curve in the leg bones, their shape there tending to transmit an inward thrust to the tarsus, and so to roll it over inwards. Serious cases of rigid flatfoot combined with slight excurvation of the leg bones in their lower portion are not uncommon, but are usually seen in adults.

To recapitulate:—

Structural weakness in the bone is the essential cause of the skeletal deformities of rachitis.

The active deforming force is either muscular action, or too great superincumbent weight, or pressure by some external object, or gravity.

The bone yields always in the direction in which the greater force is working, and this direction is often determined by the natural shape of the bone, the tendency being to increase normal curves. In some cases where there is no other reinforcing bone there is hypertrophy of the deformed bone to antagonize the deforming force.

Finally, symmetrical deformities are characteristic of rachitis, the similarity of structure of the two limbs, or the similarity of the mechanical conditions in them, tending to produce similar resulting deformities.

EYE STRAIN.

By L. E. Felton, M. D., Hanford.

Read before the San Joaquin Valley Medical Society, Fresno, March 12, 1901.

The condition known as eye strain is one concerning which the general practitioner knows very little, and in which he takes but little interest. As family physician he is usually the first to be consulted when his patient suffers from eye strain; for this reason he should be the one to first suspect, if not recognize, the trouble, and advise his patient which course to pursue. To do this intelligently he must at least have a general knowledge of the condition, its causes and symptoms. Every practitioner should familiarize himself with this subject, with test charts, a few cases of prisms, and a maddox rod, and learn to make preliminary tests for refractive and muscular errors, and at least be able to determine whether it is necessary to send his patient to a specialist for further examination. These instruments cost but very little, and the satisfaction to be derived from the use of them will well repay the outlay and time spent in study and application. There are many symptoms with which the practitioner meets in every-day practice, such as persistent headache, neuralgia, nausea, vomiting, and many other reflex nervous conditions that resist all treatment until an error of refraction or a muscular error is discovered and corrected, when the symptoms are completely relieved.

Eye strain is a condition manifesting itself by a train of symptoms due to an involuntary effort to obtain better vision. In the emmetropic eye, or eye having normal refraction, it is generally due to continual close work in which weakness of the ciliary muscle occurs, causing blurring of near objects, or, as is often the case, spasms of the ciliary muscle, causing blurring of both distant and near objects. In the hyperopic or so-called far-sighted eye it is due to the constant use of accommodation at all distances and to the effort of the muscles of the eye to fix both eyes on the object to prevent double vision. In the astigmatic eye, in addition to the causes given, it is often due to an effort of the muscles of the eye and the lid to make an astigmatic cornea spherical by pressure exerted upon the ball of the eye.

I have in several instances seen persons during examination by the ophthalmometer able to correct 1.50 D of astigmatism by this muscular pressure. In persons who are able to do this eye strain invariably results because no one can keep up such a strain upon so many of the muscles of the optical system without producing unpleasant symptoms. The most common cause of eye strain visible to the eyes are errors of refraction and muscular errors associated with it. Of 320 consecutive cases of eye strain taken from my records all but two were found to have more or less error of refraction. Two hundred and twenty-nine were simple cases of hyperopia; 86 were cases of astigmatism: 3 were cases of simple myopia. Of the 229 of hyperopia, the error in 25 was .50 D; in 43, .75 D; in 72, 1.00 D; in 28, 1.25 D; in 21, 1.50 D; in 6, 1.75 D; in 10, 2.00 D; in 5, 2.20 D; in 3, 2.50 D; in 5, 3.00 D; in 8, 3.50 D; in 1, 4.50 D; in 1, 7.00 D; in 1, 6.00 D. Of the 84 cases of astigmatism, 45 were cases of astigmatism and 41 were cases of astigmatism combined with hyperopia and myopia. The severity of the symptoms of eye strain are often out of proportion to the degree of error. Delicate women and children of a sensitive nervous organization often have very marked and persistent symptoms with a very low degree of error. This is particularly true in cases where the acuity of vision equals $\frac{20}{15}$ or $\frac{20}{10}$, the average. I have met with several cases of astigmatism where V without glasses was $\frac{20}{10}$ and under hematropin with ½ D Cyl. was $\frac{20}{20}$. These are cases that nearly always escape the attention of the optician and of the doctor. Errors of refraction causing severe symptoms of eye strain are frequently caused by the use of improper glasses. It is not uncommon to meet with cases of hyperopia wearing glasses intended for myopia. This is due to the fact that constant use of the eyes for near work often causes a spasm of the ciliary muscle, which persists for distant objects, thus similating myopia. This spasm is often so persistent that nothing but a mydriatic will relax it. If a hyperopia suffering from spasm is given a concave lens that corrects the apparent myopia, the original error is increased by the strength of the glass prescribed. I have several cases in mind that applied to me for severe eye strain sufficient to cause them to leave school, who were found to be wearing concave glasses continuously for a supposed myopia, which upon examination under a myadriatic proved to be a hyperopia aggravated by wearing glasses, that caused more than double the original error. Several of these cases were relieved of their symptoms by simply relaxing the eyes and taking off the concave glasses. Errors causing eye strain are also produced by using cylinders and prisms that are not required.

Excessive eye work, insufficient light, and other unfavorable conditions, even though the eyes are emmetropic, often give rise to symptoms of eye strain. Eye strain is caused by long continued use of accommodation from too long hours of work or by holding small objects too near the eye, by ordinary near work after accommodation has diminished with age, or by defective vision from any cause. It is also caused by efforts to keep the eyes properly directed for near objects and from this effort to accurately coordinate muscular movements, as those of accommodation and convergence. Any condition that lessens the viability or exhausts the nerve centers often tends to develop eye strain with or without errors of refraction or muscular errors. The symptoms of eye strain are blurring of distant objects, blurring of near objects, double vision, pain in the eyes, photophobia, excessive flow of tears, conjunctivitis in all degrees from simple congestion to severe inflammation, blepharitis, stys and eczema of lids. All kinds of headache, neuralgic pains in other parts of the body, nausea, vomiting, twitchings of the muscles of the eye, even chorea and epileptic attacks are occasionally met with.

The determination of eye strain is not always easy. The presence of errors of refraction with some of the symptoms is not positive evidence that they result from the errors. Many persons have high degrees of refractive error, and never have eye strain. In fact by far the greater percentage of eyes have more or less error. When the symptoms are relieved by relaxing the muscles, either by lenses, prisms, or mydriatics, there is the strongest reasons for pronouncing the case one of eye strain. Some of the simplest and most satisfactory methods, for the general practitioner to make preliminary tests for refractive and muscular errors, are: (1) Test for acuity of vision by means of a chart. If this be found normal in each eye at 20 feet, next place a weak convex lens +0.25 D or +0.50 D before each eye. If the patient's refraction is normal, he will be unable to read the same print without the glass, because in the normal eye accommodation is completely relaxed for 20 feet, and a convex glass focuses the image in front of the retina, making this eye myopic. On the other hand if the patient can read the same print as well with the convex lens, the accommodation was not relaxed and the patient is probably hyperopic. (2) The maddox rod test. When the patient looks at a lighted candle placed at a distance of 20 feet, with both eyes, the rod test being placed in front of one eye, he should see the rod of light passing through the center of the flame at right angles to the direction in which the rod test is placed. Any deviation from this shows muscular insufficiency, and the affected muscles are determined by the position of the rod test. Of all the foregoing tests this to the general practitioner is the simplest and most important, because in nearly every case of hyperopia there is a corresponding convergence, and this is often manifest with the rod, when the hyperopia can only be evident by the use of a mydriatic. In the treatment of eye strain the first and most important indication is rest for the accommodation, and this is best accomplished by complete and enforced relaxation of the ciliary muscle under the influence of atropin. Unfortunately very few persons are able or inclined to give up the use of their eyes for any period of time, which makes it necessary to accomplish this end in some other manner, so that the patient may use the eyes and at the same time receive treatment. Existing errors of refraction must be suitably corrected, and the measurement of the error should, in persons under 40 where practicable, be made under the influence of a mydriatic, not only on account of the ease in conducting the examination and the more accurate measurement of the error, but for the additional purpose of ascertaining the effect of the mydriatic upon the reflex symptoms. The complete relief of the symptoms of eye strain immediately following the use of the mydriatic, hematropin, or atropia, in many cases is simply wonderful. In many patients the use of atropin for weeks gives greater relief than all other plans of treatment combined, but as a rule it is only where urgent symptoms demand that the patient will willingly submit to it or the physician enforce it. The relaxation of the spasm by atropin often existing in hyperopia and hyperopic astigmatism renders it possible for many patients to wear much stronger glasses in the beginning than would have been otherwise possible. It must be remembered that the use of glasses is often only auxiliary to other methods of treatment as in cases of exhaustion from disease, which must receive appropriate treatment. If, after the correction of existing errors of refraction and the treatment of constitutional complications, the symptoms of eye strain persist and seem to be due to lack of balance of eye muscles, the question of operation must be considered.

THE TUBERCULIN TEST.

By F. E. Twining, Ph. D., Fresno, Cal.

Read at Meeting of the San Joaquin Valley Medical Society, March 12, 1901.

It is generally conceded that tuberculosis is curable in only a small percentage of the cases in which an accurate diagnosis can be made by physical signs. After a certain diagnosis is reached then the opportunity for relief rapidly diminishes. Every practitioner knows the difficulty of making a certain diagnosis in the first stage or early in the second, and an accurate diagnostic agent is much to be desired. In following the experiments of others, and making some careful observations of my own, I am of the opinion that in tuberculin we have a safe and accurate agent, that is, if the tuberculin has been properly prepared and is properly used.

Eleven years ago Koch first announced his experiments with the product of the bacillus tuberculosis. He had found that, if a local tubercular infection was set up in a guinea pig by subcutaneous injection, and later a second subcutaneous injection of virulent or dead bacilli was made in another part of the body, the ulceration set up in the primary tubercular nodule would heal, and the animal would not die of tuberculosis. From the results of prolonged investigation Koch found that there appeared to exist in tubercle bacillus an albumose-like body, which exerted a healing action on tuberculosis. He prepared a gycerin extract of this body, and called it tuberculin. Koch's original tuberculin may be prepared by growing the tubercle bacillus on various media, the usual method being that of placing a small mass of the bacilli on the surface of a sterilized meat infusion, to which is added 1 per cent peptone and from 4 to 6 per cent glycerin, contained in flasks with wide bottoms that the surface of the liquid be as great as possible. The inoculated media is placed in an incubator at a temperature of 37°C. The germs form a yellowish-white layer on the surface of the infusion, which, after six weeks, breaks up and sinks to the bottom. The liquid is then sterilized, filtered through porcelain, and concentrated to about one-tenth its volume. This constitutes the concentrated crude tuberculin of Koch. It will be seen that it must contain, in addition to water and glycerin, any other unchanged product of the original meat infusion, and any split use of accommodation from too long hours of work or by holding small objects too near the eye, by ordinary near work after accommodation has diminished with age, or by defective vision from any cause. It is also caused by efforts to keep the eyes properly directed for near objects and from this effort to accurately coordinate muscular movements, as those of accommodation and convergence. Any condition that lessens the viability or exhausts the nerve centers often tends to develop eye strain with or without errors of refraction or muscular errors. The symptoms of eye strain are blurring of distant objects, blurring of near objects, double vision, pain in the eyes, photophobia, excessive flow of tears, conjunctivitis in all degrees from simple congestion to severe inflammation, blepharitis, stys and eczema of lids. All kinds of headache, neuralgic pains in other parts of the body, nausea, vomiting, twitchings of the muscles of the eye, even chorea and epileptic attacks are occasionally met with.

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Practically the tuberculin reaction consists of a perceptible rise of temperature in tuberculous persons following the injection of a small amount of tuberculin. While we need to know more as to the mechanism of the tuberculin reaction, the generally accepted theory is that tuberculin injected is irritant to tuberculous foci, and to all susceptible organisms in general. It produces hyperemia of all the tuberculous tissue, a local reaction, and as a result of this hyperemia much toxin stored up in the tubercles is thrown upon the general circulation and produces fever and the characteristic symptoms known as the general reaction. The following facts tend to support this theory: (1) More albumose can be collected from the urine during the reaction than was contained in the test injection. (2) Patients suffering from localized surgical tubercular processes of limited extent, and where the vascular supply of part is limited, require a larger amount of tuberculin to produce the reaction than those who have extensive or scattered lesions in highly vascular organs like the lungs. The opponents of the tuberculin test state that the test is dangerous, and tends to aggravate the disease. This statement is due to the fact that autopsies made upon tuberculous patients treated with increasing doses of tuberculin, so as to produce frequent and violent reactions, revealed in an unusual number of cases the presence of apparently new tuberculous foci at a distance from the original and recognized lesions. It is conceded that violent and frequent reactions in patients in advanced stages of tuberculosis tend to exhaust the already overtaxed defensive resources of the organism, and may in this way aggravate the disease. In incipient cases the conditions are quite different. Then the resistance of the patient is but little impaired. Moreover, it is necessary to produce only one moderate reaction. The finding of more pronounced and distant lesions may not necessarily mean that the bacilli were disseminated through the system as a result of the tuberculin. We have ample clinical and experimental evidence that the local reaction resulting from an injection of tuberculin makes apparent the latent and unsuspected tuberculous lesions, but no proof has been brought forward to show that the bacilli are scattered through the system or that new tuberculous foci are produced as a result of such injections. Experimental work on this subject has determined that the extent and number of tubercles visible in the peritoneum, when the treated animals are killed at an early stage of the disease, are greatly in excess of that noted in the same stage in controls. Careful microscopical study of these large and numerous tubercles reveals an aggregation of leucocytes, which appear to represent a defensive effort on the part of the system to limit the disease; the bacilli in them are few in number, and soon disappear, leaving only slight fibrous lesions from which the animal ultimately completely recovers. In the controls, killed at the same period, there is but little evidence of disease to the naked eye, but a microscopical study of the peritoneum reveals everywhere small nodules swarming with large numbers of bacilli, the disease going on rapidly to a fatal termination.

It is in the early stages of tuberculosis that tuberculin is of greatest value; namely, the first stage or lymphatic infection, and in the second or that of tubercle formation. The third stage, that of ulceration and tissue destruction, can usually be diagnosed by physical signs, and, although tuberculin can be used, the results are not always satisfactory. In applying the test it is necessary that the temperature be taken several times before the injection, for, if the temperature is much higher than normal, the test should not be applied. The injection is usually made in the evening. From .5 to 2 mg of tuberculin should be injected into the muscles of the back or thigh. The usual antiseptic precautions are to be observed. The temperature is taken ten or twelve hours after and then every hour or two until a rise is observed. If same does not occur within twenty-four hours after the injection, the result may be considered negative. In my own experience this rise has varied from one to three degrees, although some workers use small doses, $\frac{1}{10}$ to $\frac{1}{5}$ mg, and claim that reactions of less than one degree are positive. Another test can be made a few days later, but a larger dose is necessary. Doses of 1 to 15 mg do not affect healthy individuals.

Mrs. E., aet. 32, treated for diphtheria, February, 1899. Patient somewhat delicate for several years, anemic, suffers from catarrh. Cervical glands slightly swollen, some cough, but little expectoration. Average temperature before injection, 98.8°; temperature 12 hours after injection, 99.8°; temperature 14 hours after injection, 101°; temperature 16 hours after injection, 102.1°; temperature 20 hours after injection, 101.8°. Health at present apparently good.

Mr. S., aet. 35, laborer. June, 1899. Had considerable cough and expectoration, no tubercle bacilli found, some night sweats, loss of weight. Cervical glands swollen. On left side shortened sounds and weakened respiratory murmur, over right apex moderately numerous rales. Patient placed on general tonic treatment. Tuberculin gave reaction of 1.2°. About six months later. Symptoms worse, cough bad. Bacilli found in sputum. T-R used. Two months later branch bacilli were found. Constant improvement. Test eighteen months later negative. Still under observation.

Mrs. H., aet. 24, December, 1899. Catarrh and cough. Another member of the family having died of tuberculosis, test was made. Reaction 102°. Serum treatment. At present apparently cured.

Mr. B., aet. 41. Anemic, considerable coughing, with little expectoration, no bacilli. Tuberculin test gave 101.9°. Two months later expectoration increased, bacilli found, serum treatment, weight gradually increasing and cough disappearing. February, 1901, temperature 98.7°; later, 99°. Under observation.

Mr. K., February, 1901. Bacilli found in sputum two years ago. Under treatment he has apparently been restored to health. No cough, weight increasing, etc. Test negative.

HOSPITAL REPORTS.

Gynecological Clinic, Cooper Medical College, Geo. B. Somers, M. D., in charge.

Reported by Minora E. Kibbe, M. D.

EPITHELIOMA OF THE LABIUM MAJORUM.

Miss W. Age 29. Family history good. As a young girl was subject to frequent attacks of psoriasis, appearing chiefly on the scalp. In 1896 noticed that abdomen was beginning to enlarge. An examination showed the abdomen filled with fluid. In consultation with Dr. Clinton Cushing an exploratory incision was advised and carried out. The operation revealed tuberculosis of the pelvic peritoneum. Right ovary was removed because it was especially involved in adhesions and miliary turbercles. The uterus was found in close contact with the bladder, the peritoneum from the bladder passing directly to the fundus of the uterus, leaving no vesicouterine pouch. The abdominal and pelvic cavity was thoroughly exposed, washed out with salt solution, and the wound sewed up. Recovery was rapid, and there has been no return of symptoms. In December, 1900, she consulted regarding a soft spot on right labium majorum. It proved to be a round elevated ulcer about the size of a quarter of a dollar, with markedly indurated base and slightly elevated edges. The surface was covered with large granulations, but showed no necrotic tissue. The groin glands were not decidedly enlarged. Under anesthetic the diseased skin was freely excised, and the edges of the wound sewed together. The specimens were sent to Professor Ophuls for examination, who returned the following report:—

"In most places the surface epithelium is lost. The tissue underneath consists of an irregular network of fibrous tissue. The spaces are filled with large epithelial cells. The central ones show signs of conification. In some places there are typical epithelial pearls. Diagnosis: Epithelioma." The wound healed well, and to date, three months after operation, there has been no sign of recurrence. The marked features of the case are the rareness of the disease and the youth of the patient.

APPENDICITIS.

Clinic case 2903. Married, aged 41, 7 children, 1 miscarriage, no history of hereditary disease, dates her trouble from the miscarriage 5 years ago. Before the miscarriage she flowed constantly for two months. Since the miscarriage has had painful periods and backache. For past two years has had increased pain on right side. Two or three times a year has had such violent pain she was compelled to go to bed. Pain is on right side chiefly. Sometimes it starts in the back, passes down the right side of the abdomen to the groin, then to the knee. Periods are always painful. When the pain is most intense she lies with her thighs flexed on abdomen to get relief. Has pain in the hypogastrium, which is referred to the bladder. Gets up from 5 to 7 times at night to urinate. Examination of the urine shows constant cloud of albumen, and the microscope reveals evidence of cystitis without signs of renal complications. Depth of uterus 3 inches. Bimanual examination showed great tenderness in right ovarian region, and it was thought that both tube and ovary were somewhat enlarged. One small spot felt through the right vaginal wall and apparently not connected with adnexa was particularly tender. Professor Ophuls found nothing abnormal in uterine scrapings sent for examination. The clinical diagnosis of salpingo-orphoritis was made, and owing to intensity of pain ovariotomy was advised. Operation Feb. 16, 1901. On getting into the pelvic cavity, neither of the uterine appendages showed disease enough to account for the pain. Search was then made for the appendix. It was found very long, hanging over the brim into the pelvic cavity. It was much congested, filled with fecal matter, and evidently suffering from stenosis at its juncture with the sacrum. It was removed, and, as the right ovary showed signs of degeneration, it was also removed. Recovery was without event.

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THE PLAGUE SITUATION.

A review of the plague situation, since that remarkable message of Governor Gage was presented to the people, is most replete with interesting climaxes. His excellency was not satisfied with his charge of criminal action on the part of Doctor Kinyoun, but with the advent of the commission sent by the government to investigate the question of the existence of the disease, he immediately telegraphed to the Secretary of the Treasury criticizing the latter's action, and questioning his right to enter a domain, which the chief executive of this state seemingly presumes to own, and to rule with unlimited authority. The reply of the Secretary of the Treasury was so caustic and so unequivocally told the governor of this state that he was trespassing and interfering beyond his sphere, that he at once in desperation formed his plague recommendations into bills, which, without awaiting the formality of being printed, were to be forced through the Legislature by any possible means and at once. The object of this procedure was so bold and defiant that some one balked, and the measures, even under the last of an enraged autocrat, met with deserved opposition. They were known as "Health Bills;" they were three in number. The first comprised three sections, the first of which briefly reads thus:—

> Any person who wilfully or maliciously exposes, handles, places, or otherwise deals with any disease germs, bacilli, cultures, organisms, or seeds of disease, or sources from which disease may be communicated, for the purpose of communicating such disease, or with the intent to spread or communicate any infectious or contagious disease, or who negligently exposes, handles, or otherwise deals with the same in a manner calculated to endanger the public health, or to result in the spread of a contagious or infectious disease, is guilty of a felony, and upon conviction thereof shall be punished by imprisonment in a state prison for a term of not less than one year nor more than ten years, or by a fine of not less than $500 nor more than $5,000, or by both such fine and imprisonment.

The absurdity of this section is too apparent for criticism. To the utter disgrace and shame of the governor of California, this charge was aimed at the federal quarantine officer, Doctor Kinyoun, whom he has persistently and falsely charged with infecting the body of a Chinaman with imported plague bacilli. Such an insult deserves the severest condemnation by the medical men of the Union, and its maliciousness is incomprehensible in face of the truth. Such a spectacle is awful to contemplate, and California must ever bow her head while the present incumbent of the gubernatorial chair holds sway.

The second section runs thus:—

> Any person or any officer or member of any association, board, committee, or corporation, who publishes by any writing or printing, that Asiatic cholera or the bubonic plague exists, or has recently existed, within this state, unless the State Board of Health thereof has first determined such to be the fact, and has entered a record of such determination at length upon the minutes of the board, is guilty of a felony.

It is to be deeply regretted that this section was not made a law as here proposed, then this question would have been satisfactorily and promptly settled, and much of the ignominy now besmirching the honor of this state would have been spared to her.

The third new section provides that upon the verification of the State Board of Health of any case of Asiatic cholera or of bubonic plague within the state, its secretary must, when directed by such board, enter upon its minutes its determination that such cholera or plague exists, and must forward a copy of such determination, certified by him, to each of the local boards of health and to the board of health of each state in the United States, and also to the United States Treasury Department at Washington.

This third section is so adroitly drawn that his excellency, even if the plague existed at any future time, would be unable to determine the truth. He knew very well that if the present State Board of Health were ever convinced of the facts, they would never be made a part of the minutes; or, if made, would never be published, and no other state would therefore be notified. Moreover, he appreciates the fact that the bacillus pestis is rapidly destroyed by post mortem changes, therefore, by the time the secretary of this board, as now constructed, would be notified, and an examination could be ordered, the probability of securing any evidence would be effaced. The aim, then, of this section is self-evident, and as the measure has become a law, we can not expect any aid in eradicating this disease from this source. As in the past much opposition under the guise of good-will will be offered at great cost to the city. One assurance, however, is left us, that no such shameful resolution will be put in force. A higher power, led by honest motives for the protection of our country, will brave his excellency and his stultifying law.

The second bill, appropriating one hundred thousand dollars to be expended by the State Board of Health, under the supervision of the governor, is briefly as follows:—

In a second bill an appropriation of $100,000 is provided, to be expended by the State Board of Health, under the direction of the governor, for the prevention of the introduction of Asiatic cholera, bubonic plague, smallpox, or other contagious or infectious disease, within this state, and for their suppression in case of their origin or introduction. It is provided that the claims for expenditures shall be audited by the board of examiners, except when, in the opinion of the governor, an emergency arises which demands or necessitates the immediate use of the money, and in that case it is provided that the controller must draw his warrant in the name of the governor, without auditing, for sums not exceeding $1,000, at any time the governor may direct. The vouchers for sums so drawn must afterward be filed with the controller, showing the manner and the purposes for which such sums have been expended.

This appropriation, as events have and will prove, is greatly needed, but the amount is entirely inadequate for the purpose. It will require, under the strictest economy, several times that sum. The wording of this bill, if our summary is correct, "for the prevention of the introduction of Asiatic cholera," etc., imparts a very suspicious tone when the course of our chief executive has been reviewed. He, no doubt, means the introduction of Asiatic cholera and contagious diseases through ordinary channels of commerce; but if, by any means possible, he intended, as can be readily inferred from its wording, which is in perfect keeping with the language of the first section of the previous bill, the criminal introduction of the germs of these diseases, then his conduct in this matter deserves most serious condemnation. It has been stated that originally this bill was not intended to meet the direct and actual prevention and spread of contagious diseases, but the denial and nullification of the report of the commission, and thereby to enable him to still deny that the plague has ever existed in California. This statement is, to a degree, verified by the hysterical efforts of his excellency to secure the addresses of Kitasato, Yersin, and Haffkine, that they could be brought here to bolster up the position of the government of this state. During this period of extreme agitation, brought about by vague rumors that the commission had found several cases of plague, words of wisdom crept into the councils at Sacramento, that these eminent gentlemen would be hailed with joy by the opposition. It should be remembered that Doctor Kinyoun, in the beginning of this little unpleasantness, offered, at his own expense, to bring Kitasato here, which offer was not accepted by his excellency, who stated that he did not want to know the truth. With the defeat of this purpose, events have forced the use of this appropriation. The reports of the committee, the further occurrence of cases, and the absolute failure to either suppress the disease or to protect neighboring states for a month, brought down the ire of the governor of Texas, who, on or about the twentieth of March, telegraphed to the Secretary of the Treasury that unless adequate measures were at once instituted to prevent the spread of the disease, he would place "a most drastic and severe quarantine against the state of California." The Secretary of the Treasury, in order to reply immediately, wired Governor Gage to know what precautions had been taken, and what was being done to protect other states. As his excellency had completely failed to act in any way, he promptly called a consultation in San Francisco of the business interests, the mayor and Doctor Williamson, of the board of health, to determine the course of action best to be pursued. The matter ended here, as far as any real work was concerned. Consoling messages to stay the hand of Governor Sayers and the loyal and honest health officer, Doctor Blunt, of Texas, were promptly sent out.

The program, as finally outlined, is certainly a pleasant assurance of the fulfilment of the unwritten intention of the framers of this bill, and bids fair to bring about a complete realization of the hopes of certain individuals, who have long had a studied care for the useful and conscientious distribution of this little plum.

A third bill provides this new section to be added to the political code:—

> It is the duty of every local board of health, and of each of the members thereof, and of every coroner, and other public officer knowing, or having reason to believe, that any case of Asiatic cholera or of bubonic plague exists, or has recently existed, within the city, city and county, town, township, or county of which he is an officer, or of which such local board of health is an official body, to at once report such case to the State Board of Health, which may thereupon take such measures as it may deem necessary to ascertain whether such case of cholera or plague exists, or has so existed, and to prevent the further spread of such contagion, and to that end, such state board may, if it deems proper, take possession and control of the body of any living or the corpse of any deceased person which is or has been afflicted with either of such diseases, and may direct and take such means as it may deem expedient to arrest the further spread of such disease or diseases.

The above, the third and last bill of this group, while it is a corollary to a certain extent of section two of the first bill, has two distinct objects in view. The first centers in the governor and the State Board of Health most of the power that belonged to the local boards, which, while practically destroying all power of these boards and rendering their acts null and void, has been rendered inoperative by the addition of an amendment, which in an emergency and under great stress, allows a local board to act until the higher board can be notified. This is another example of the logic and ability at law-making of the occupant of the gubernatorial chair. The second object of this bill was to return to the old form of procedure, and establish a state quarantine, which promptly invoked the wrath of all the business men of San Francisco, who stated that the United States Marine Hospital Service was efficient and thorough, and gave the best and most satisfactory results. Their position on this occasion was not only anomalous, but convincing that to interfere with business and the possibility of making a dollar was their supreme object in life, no matter who had charge. They argued that, if a state quarantine officer was appointed, it meant a useless expense, a tax on the shipping interests, which would do more injury than the existence of plague. A terrible howl went up. The federal quarantine, which they had condemned and cursed only a few days before, was now eminently satisfactory. They would even retain Kinyoun, bad as he was. But his excellency wanted power and place for his friends. The one hundred thousand dollars has been appropriated.

Considering the publicity given the debates upon these bills, we will not go further into details. The bills were not flashed through the Legislature. The fight was long and bitter. It was not contended on the merits or honesty of the cause. Coercion and threats, which have been made good, to the chagrin and dismay of several legislators, and to the disappointment of many people, forced the Legislature to keep alive, by any and all means possible, the falsehoods contained in this message. At this time, also, a joint resolution was introduced in the Senate, demanding the removal of Doctor Kinyoun. We regret to say that this most insulting and outrageous document was lost in the order of proceeding, and it has never come to life. Its passage would have brought about a very thorough investigation of the intrigue and political maneuvers of certain people in this state. They very wisely refrained from taking further action.

Beyond all doubt this session of the Legislature has brought much well-deserved censure upon itself and our people. We do not care to criticize the personal actions of the members, but it is unfortunate that certain members of the profession in the Legislature differed very greatly in their consideration of these bills. One member stood firmly and squarely by his master; he was consistent throughout, and voted in favor of the bills on all occasions. Another at first favored their passage, but subsequently, to his credit, was converted to the truth, and vigorously antagonized the governor, upholding with a firm hand the position of scientific medicine. Two others of the profession constantly fought these measures by word and action, and bravely defended, in the face of the most violent opposition, the stand taken by the quarantine officer and the San Francisco Board of Health. One word of extenuation must be offered in behalf of the physician who voted faithfully with the majority. Upon very excellent authority, his aid and advice as to the course to be pursued in securing the passage of the bill creating a State Board of Medical Examiners, should shield him from too severe blame. Upon the whole, their position was a trying one; the questions presented were serious for the local profession and for the honor and integrity of the profession at large. We are disposed to be lenient in our censure, but are firm in the belief that the truth is preeminently the best, no matter what the circumstances may be. The medical bill could possibly have been passed without presenting this liability to blame. So much, briefly, for the part played by the Legislature in the passage of these so-called "Health Bills."

The commission, sent by the Treasury Department, had scarcely reached San Francisco before the newspapers, at the instigation of the moneyed interest, and its abettors, much to the dismay of the more thoughtful people, begun to villify and belittle the reputation of these gentlement as scientists. It was to be hoped that sufficient decency was somewhere left in our press, to extend some courtesy to strangers, who had been sent, not to pry into our affairs with any intention of injury, but simply in obedience to the government of our country. Such was not the case. The governor initiated the movement by his telegram to Secretary Gage. So determined was he, that no occasion could be spared for abusing those who differed from him upon this question. The commission, however, after extending a most courteous invitation to all to present any evidence as to the existence of the disease, began their work about the 6th of February, and closed their investigation upon the 16th of the same month. The report was forwarded to Surgeon-General Wyman on February the 26th, a copy of which is published on page 101.

The members of this commission left San Francisco on Saturday, March the 9th, and on the Tuesday following a commission, consisting of Messrs. W. F. Herrin and John P. Young, of the *Chronicle;* T. T. Williams, of the *Examiner;* Fremont Older, of the *Bulletin,* and Henry T. Scott, left San Francisco, to use every effort for the suppression of this report. How well they have succeeded is proven by the results. But few copies have been sent out. Each has been carefully guarded, that the evidence contained therein shall not become known. After several conferences, the following agreement was signed by the members of this committee, the Secretary of the Treasury, and by the Surgeon-General of the Marine Hospital Service, Doctor Wyman:—

> That the report of the Federal Plague Commission on the conditions in San Francisco shall not be made public.
>
> That nothing shall be made public by the marine hospital service with reference to plague in California, either in Washington or elsewhere; all reports from its quarantine officers of the discovery of plague cases are to be suppressed, and all sources of information regarding plague in this state are to be cut off from the general public so far as the marine hospital service is concerned.
>
> That the San Francisco newspapers, all of which were represented at the conference with Governor Gage, at which the commission to Washington was agreed upon, shall publish nothing whatever about plague in this state, either for or against the proposition that it exists here.

No comment is necessary. Little else could be expected from the members of this committee. They have fought the report of the existence of the disease at every point, and they know full well that their opposition is false and criminal to the mass of the people and the country. Their motive is selfish, entirely financial, and absolutely degrading.. Why the Treasury Department would allow its integrity to be brought into suspicion is beyond our comprehension. By his signature the Surgeon-General of the Marine Hospital has erred grievously. He has violated the law governing such questions in the service over which he is master; has broken an international agreement, known as the Vienna Compact, whereby all nations have solemnly obligated themselves to notify the governments of the world that contagious disease exists within their domain. He has sacrificed the honor and dignity of his position; he has discredited the reports of the Marine Hospital Service throughout the world; he has endangered scientific medicine and scientific investigation. He has insulted beyond reparation the members of the Marine Hospital Service, above all Drs. J. J. Kinyoun, J. H. White, the San Francisco Board of Health, and especially the members of the commission, whom he sent to report upon the existence of the disease, Drs. Simon Flexner, Lewyllis F. Barker, and F. A. Novy. Why such a compact should have been agreed upon is incomprehensible. It was fully in keeping with the falseness and the absurdity that have marked the course and progress of this affair. The newspaper men, whose signatures grace this most atrocious alliance, should have realized the impossibility of suppressing at least the contents of this report. Before they signed this agreement they violated it by a despatch declaring that no plague of a contagious nature existed in this state. Thus they kept faith in their usual graceful style with those whom they had bound hand and foot. Shortly after effecting this compromise, orders were sent to several officers of the Marine Hospital Service that no reports of plague should be given to the public. The order silenced the service everywhere. The local board of health was given orders by Mayor Phelan that no report should be made public. The governor imposed the same obligation on the State Board of Health, and to-day the whole country is shut off from any knowledge of the existence of plague in California.

We believed that, as the Marine Hospital had verified the report that plague existed in San Francisco and had published that fact to the world, she, above all others, would be loyal, stand firmly by her faithful officers, and place truth and honor above all intrigue and influence. But alas! Her position and power are now questionable, her confidence and integrity destroyed, and for what purpose and why we leave for the future to disclose. The deed done by the supervising surgeon-general is more discreditable than all that has disgraced California. The former ostensibly had nothing to gain; the latter had much at stake.

In the meantime, however, the disease has not been "shut up;" it has relentlessly pursued its deadly course without an effort on the part of any one to stem the tide. Six cases have been verified recently. All have been found dead in the miserable undertaking shops of Chinatown. One contracted the disease in Sacramento, another in Santa Barbara; the rest belong to San Francisco. We are fairly well convinced that the disease exists or has existed in Stockton, Fresno, and Bakersfield. A report not verified by inoculation experiments or bacteriology, of two cases, from the last-named town, one dying in San Francisco, a man, ill for three days, with a large carbuncular mass involving the scrotum and inguino-femoral region, becoming rapidly comatose; the other, a case of supposed pneumonia, dying within a short period of illness, showing on post mortem absolutely no pneumonic condition, but presenting enlarged glands in the femoral region, with hemorrhagic tissues surrounding, bloody effusions in the peritoneal and pleural cavities, and those of the brain, presents a fairly typical picture of plague. The supposed cases of pneumonia in this town have been rapidly fatal, of a type puzzling the physicians, and presenting symptoms not in keeping with the history of pneumonia. In other words, the condition of affairs in California stands as an awful menace to the health of its own people and those of the United

States, especially when, through the falsehoods and instability of the governor and people, absolutely nothing has been done for protection. It should be remembered by the officials of this state, great and small, that the commission has warned them personally of the solemn duty they owe their country in this crisis. They should recall the warning of Dr. Barker, when he stated that it was his belief that the disease existed from San Diego to Vancouver, B. C. They should recall the fact that, when they asked what should be done with Chinatown, they were told that it should be depopulated, that a detention hospital should be established, and that in the end, to eradicate the disease, it in all probability must be destroyed. And yet our people harken not! They still cry, "No plague," stand idly by, while the disease continues its slow and threatening march, picking off a man here and there in dreadful warning. Woe betide this community if it ever invades the homes of the rich or of those who have outraged all honor and the truth in their false groveling to mammon and preferment!

THE SAN JOAQUIN VALLEY MEDICAL SOCIETY MEETING.

The semi-annual meeting of the San Joaquin Medical Society was held March 12, at Fresno. The literary program consisted of seven papers, all of good quality, but not by any means in keeping with the capability of this deservedly flourishing society. In a spirit of extreme good will and friendliness, we would urge upon the members more care in the preparation of their papers. A little labor in this respect adds greatly to the effect. We have been fully convinced, after an attendance upon several meetings, that this body is the best of our district societies. The discussions were spirited, pointed, and offered without the hesitation and coaxing usually necessary on such occasions. The program was efficiently and pleasantly carried out by the genial president, Dr. W. T. Maupin, who was efficiently aided by the energetic secretary, Dr. A. B. Cowan. The exercises, the hospitality of individuals and of the county society, the making and remaking of friendships, the banquet, etc., were all gone through with a sincerity and generosity that has always characterized the members of the Fresno County Society, and drawn to the meeting people from every portion of the valley. The impression left by this meeting, possibly the most successful of any in this society's history, is that the whole valley and its physicians are in a most flourishing condition, and that the society's future is as bright as any in the state. The good will and friendliness shown on every side will make it long to be remembered.

SOCIETY PROCEEDINGS.

SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Regular Monthly Meeting, Tuesday, February 12, 1901.

President G. H. Evans in the chair.

DIPHTHERIA.

Dr. W. H. Kellogg read a paper, "The Diagnosis of Diphtheria." (Page 76.)

Dr. Geo. H. Evans read a paper, "The Specific Treatment of Diphtheria." (Page 83.)

Dr. W. B. Lewitt read a paper, "The General and Local Treatment of Diphtheria."

Dr. Wm. Fitch Cheney read a paper, "The Sequelæ of Diphtheria." (Page 80.)

Dr. E. S. Merritt: "Anti-toxin came into very general use in the year 1895, not only in America, but all over Europe as well. The reason for this was, because Roux of Paris read a paper at the Medical Congress in Buda-Pesth on this subject, which attracted wide attention. Anti-toxin was not discovered in France, but was, I think, discovered by Behring, of Germany; and control experiments were made at the Pasteur Institute by Roux, and in the hospitals of Paris. These control experiments fully proved all the advantages of anti-toxin, which had been claimed for it in Germany. And when Roux read his paper, giving results obtained by experiments in Paris, it attracted the attention of the whole medical world, and at once anti-toxin was given everywhere in cases of diphtheria, and has ever since been continued to be used, as time and experience have only proved its claim to be considered a specific in this dread disease. I have been very much interested in the papers read here to-night; but there was one point not touched upon, and that is in regard to the clinical diagnosis of diphtheria. It seems to me the more I see of cases of sore throat the less I know by inspection whether they are diphtheria. I have seen cases of sore throat in which the tonsils and pharynx were covered with a thick white membrane so dense and adherent that when it was taken off it left a bleeding surface. In these cases the swelling of the glands was very great, and in fact these children had all the symptoms which we were formerly taught to be pathognomonic of diphtheria. And yet the bacteriological report of cultures taken from the membranes of such sore throats stated that they were only cases of streptococcus sore throat. On the other hand, in cases where the persons were perfectly well and had no clinical evidence of either the general or local disease, diphtheria bacilli were found in the throat. Several years ago a case of diphtheria developed in my wards, at the Children's Hospital. Thereupon the interne, without my knowledge, took swabs from the throats of many children in the wards and sent them to the Health Office for examination. The report came back that all of these children had diphtheria. Unfortunately the matter got into the newspapers and made quite a little sensation. But all the children remained well, and none of them developed any symptoms of diphtheria. The number of patients that were reported to have diphtheria bacilli in their throats in the above instance was more than the two per cent that would be accounted for by the pseudo-bacillus. In a case that has clinically the symptoms of diphtheria it is easy to isolate the patient and to give him a dose of anti-toxin. But the great difficulty lies in the problem of what is to be done with persons in whom the Loeffler bacillus is reported to be present but in whom none of the symptoms of diphtheria appear. These cases also can, of course, be given a dose of anti-toxin as a preventive measure; but if the Loeffler bacillus is present in their throats they are a source of danger to others, and should not be allowed to mix with them. Theoretically they should be isolated; but it is practically impossible to isolate persons who have no membranes or other symptoms of diphtheria. It seems to me that, with the means as yet at your disposal, we can not decide this question intelligently; for undoubtedly there are cases in which the Loeffler bacillus is reported to be present, and which, nevertheless, never develop symptoms of diphtheria themselves, nor do they infect those with whom they come in contact."

Dr. A. B. McKee: "I had noted here three cases of diphtheria, which occurred in one family, illustrating the various manifestations of the same disease, and emphasizing the necessity of a bacteriological examination. V. E., aged 8 years, received an injury to the nose one year prior to consulting me on account of difficulty in breathing. At the time of the injury, there was much swelling and hemorrhage, and hence when obstruction manifested itself later, it was considered that the trouble was the result of traumatism, and the patient was referred to me by the attending physician. The patient was brought to my office, and seemed to be in perfect health except for the nasal obstruction. The examination showed the right side of the nose completely obstructed by a pearly white mass, which, after some difficulty, was detached entire, and showed a complete cast of that side of the nose. Upon inquiry, it was found that five days previously the child had complained of sore throat and slight fever and headache, and there was some swelling of the cervical glands. The mother thought that the child had mumps. Three days later the symptoms has disappeared, but the nose remained obstructed. After the removal of the membrane, there was considerable secretion and some slight re-formation of the membrane, but the child suffered no discomfort and showed no further symptoms of systemic infection. Bacteriological examination of the membrane showed diphtheria bacilli in large numbers. A few days after the attack began in this patient, another child in the same family developed severe laryngeal and pharyngeal diphtheria, as demonstrated by clinical and bacteriological examination, and subsequently died. About the same time, a third child complained of sore throat, and an examination revealed a condition that would ordinarily have been diagnosticated as follicular tonsillitis. Unfortunately, no bacteriological examination was made in the last case, but the identity of the source of infection renders it probable that the three cases were different manifestations of the same disease.”

Dr. Chas. G. Kuhlman: “This is a subject to which I have given a great deal of attention, and perhaps some of you are aware that I opened the ball in 1895, in the Journal of the American Medical Association. Of course I was adverse to anti-toxin and am to-day. I will limit my remarks to the discussion of Wm. H. Welch, our distinguished American authority on this subject, of Philadelphia. At the last meeting of the American Med. Assn., he went on record in regard to this subject, in the following language: ‘With regard to the use of anti-toxin in the laryngeal cases of diphtheria, I must say that my experience is not so favorable as that expressed by the author of the paper and most other writers. I am obliged to confess that I have been disappointed in its use.’ It occurs to me that it is scarcely fair to compare the results in intubation at the present time with the results before the days of anti-toxin, since intubation is now more generally and skilfully performed. I believe that intubation is now done earlier in the disease than during the pre-anti-toxin period. In 1895 anti-toxin was not as abundant as at present, and in Philadelphia we were obliged to rely on that obtained from other countries, more particularly Germany. During that year it so happened that about one-half of the intubation cases received it and the other half did not, and the difference of death-rate was 3.39 per cent in favor of the anti-toxin cases. In that year we limited its use to cases in the early stage of the disease. The far advanced and moribund cases did not receive it, and this may account for the higher death-rate in the non-anti-toxin cases. Our death-rate in the hospital since then, in intubation cases, which receive anti-toxin, has varied annually from 58 to 68 per cent. In 1894, the year preceding the introduction of anti-toxin, the death-rate was 75 per cent, much higher it is true than it has been since; but diphtheria in 1894, as every one knows, was exceedingly severe in every country, and the death-rate was higher than it has been since, or it was for many years preceding that date. (See Jour. A. M. A., Jan. 26, 1901.) The statistics of Berlin, the home of anti-toxin, compiled by Gottstein, show a 25 per cent increase in mortality during anti-toxin years over non-anti-toxin years. To say that anti-toxin is harmless because it does not show its poisonous effects immediately, is unscientific, for it has long been well established that such substances are stored up within certain cells of the organism, and when eliminated at some remote period, slowly poison the organism, giving rise to various degenerative processes—the so-called “chronic diseases.” The absurdity of the treatment becomes quite apparent by contrasting the healing power of pure infant blood with the healing power of the blood of old government mules, containing the poisons of glanders, tuberculosis, and diphtheria. This much for the rational use and value of anti-toxin. Now for the value of bacteriologic diagnosis. Of the 6,511 cases of “clinical diphtheria” reported by the New York Board of Health between 1894-1895, less than 50 per cent were pronounced “bacteriologic diphtheria.” A report filed with the San Francisco Board of Health by John C. Spencer, sets forth that less than 15 per cent of the “clinical cases” reported responded to the “bacteriologic tests.’ The anomalous position of Health Boards is very apparent indeed when we consider how they denounce and prosecute those that sell the tissues of diseased animals, while they laud and reward those who inject the poisonous blood from the very same animals into the bodies of defenseless little children. At some future time I shall show that such treatment constitutes “reversion to barbarism.”’”

Dr. Geo. H. Evans: “I would like to make a little more prominent one point which Dr. Kellogg mentioned in his paper regarding bacteriologic diagnosis, which was the necessity of using the swab before antiseptic solutions have been applied to the throat. The failure to do this accounts for many of the errors in laboratory diagnosis. Unfortunately, the average practitioner, when he sees a case of sore throat, immediately begins to use some antiseptic lotion, and after the throat has been drenched with this solution for from 24 to 48 hours, he rubs the swab over the diseased membrane, or, if it is an obstreperous child, as near the diseased membrane as he can conveniently get it, and sends that swab to the laboratory probably the day after, and ridicules bacteriology if the report states that no diphtheria bacilli have been found. I know that this is done by a great many physicians. Dr. Merritt has mentioned the importance of making a clinical diagnosis of diphtheria. There are sometimes great difficulties in doing this, and yet how important it is if possible, and it is not possible in all cases. There are cases in which all clinical symptoms and the laboratory diagnosis are at variance; nor is it possible for the bacteriologist in all cases to establish the diagnosis. A case under my care at present has given rise to considerable difference of opinion among bacteriologists as to whether the bacillus found is the Klebs-Loeffler or not, the clinical symptoms in this case being those common to follicular tonsillitis. Some of the remarks that were made here to-night only serve to illustrate the mistakes made by those who persist in misreading statistics compiled by others; and this is particularly illustrated when a man stands up in this meeting and attempts to tell us that the mortality from diphtheria has been increased in Europe since the use of anti-toxin, and especially in Germany. Cobbett, in a recent number of the *Lancet*, referring to the mortality rates in Paris, Berlin, and 266 other German cities, mentions the great reduction in mortality coincident with the introduction of anti-toxin; and, indeed, compares this marked reduction with the reduction in London in the same time, where the decline in mortality, while it has been decided, has not been so great as in the continental cities. I have been careful in the preparation of this paper to look over the records in the hands of the Health Board, and think it is only just to the society and to Dr. Kuhlman, after his discourteous tirade on anti-toxin, and the ungentlemanly epithets which he applied to it, to explain that his conclusions have not been based on his personal experience with the remedy, but on information (?) that he had gathered elsewhere; for during the last four years he has had a mortality rate of 100 per cent, a condition of affairs which would have been impossible had anti-toxin been intelligently used."

Dr. W. B. Lewitt: "In cases of nasal and naso-pharyngeal diphtheria I do not think there is much danger of the fluid, used to irrigate these cavities, entering the Eustachian tube. Owing to the pressure of the false membrane and the swollen condition of the mucous membrane, the openings into the tubes are more or less obstructed. But even were it so, I think it is the question of choosing the lesser of two evils. The spray does not answer the purpose at all, for it will not wash out the affected cavities, and with a two or three-year-old child it is more difficult to use the spray than to swab the throat."

Dr. Wm. Fitch Cheney: "My paper on the sequelæ has had very little said about it, and I have very little to say about it. With regard to anti-toxin, I would like to go on record with the rest of these gentlemen as to my faith in it. I have never seen anything but the best results from its use."

SYPHILITIC REINFECTION.

Dr. A. B. Grosse reported the following case: "Syphilographers demand the presence of four conditions before they will accept a case as one of reinfection: (1) Absolute proof of a previous syphilitic infection. (2) A typical primary lesion or at least one fortified either by confrontation or by history of exposure. (3) Presence of general adenopathy. (4) Presence of roseola or other early secondary symptoms, the roseola being the more important. All these conditions are present in the case detailed below, so it is proven that it behooves one to carefully observe a case before accepting it as one of reinfection. Date, November 24, 1900. Name, R. H. C. Occupation, banker. Nativity, Canada. Age, 37. Family history: Father died of pneumonia, aged 63; mother died of peritonitis following miscarriage, aged 37; two brothers and two sisters living and well. Habits, temperate. Previous history: Eleven years ago had primary. A scar plainly visible in sulcus: followed in seven weeks by secondaries. After first year no further manifestations. For three years was treated intermittently with inunctions, injections of bichlorid of mercury, and iodid of potassium. Then was given permission to marry after having subjected himself to another course of inunction. Has two children, one girl seven years, healthy up to date and born at term, and a boy four and a half years, healthy and born at term. Wife healthy and has had no miscarriages. Present illness: Has ulceration to the left of frenum which looks like confluent ulcerated herpes. Never has had herpetic affection of penis. Sore not indurated, but accompanied by burning pain. One week ago felt burning and itching on penis. He bathed the organ repeatedly in hot water and paid no particular attention to it as he considered himself immune. Confesses suspicious connection October 30, 1900. Adenopathy: One gland on left groin enlarged, other glands of groin palpable. Left epitroclear palpable. Gland at right angle of jaw enlarged. Three anterior cervicles and one left posterior enlarged. Axillary glands palpable. November 28, 1900, very much improved. December 7, 1900, absolutely well, no sign of scar. January 8, 1901, roseola of trunk and limbs, no itching, pigmentation remains on pressure, adenopathy same as above. January 11, 1901, in center of several of roseolar spots small papules are found which are slightly squamous. January 14, 1901, rash faded, only remains of papules demonstrable. January 16, 1901, rash has faded entirely. January 22, 1901, similar rash came on immediately after taking twenty grains antipyrin for hemicrania. Took same drug on January 7, 1901, that is, one day before outbreak of eruption. February 2, 1901, rash has disappeared. February 13, 1901, has another outbreak after taking antipyrin. Molenes, in the *Ann. de Dermat,* 1891, p. 378, publishes a case of antipyrin exanthem following a sore on penis, which was mistaken for lues in the Hospital St. Louis, Paris. In this case the rash was squamous and itchy. In *Nebenwirkung der Artzneimittel,* Lewin, I find the statement that antiyprin eruptions are always accompanied by itchy, inflammatory symptoms, tenseness of skin, and that it usually attacks the face, the only case without inflammatory symptoms cited being that of a tubercular dypsomaniac. I have above described an antipyrin exanthem such as has always been considered pathognomonic of roseola specifica. Besides, the eruption differs from any antipyrin rash previously described. Still we must consider antipyrin as the only etiological factor, as the rash was produced three successive times after the injection of the drug.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, February 26, 1901.

Dr. D. W. Montgomery, the president, in the chair.

APPENDICITIS AND PERFORATION IN TYPHOID FEVER.

Dr. Beverly MacMonagle reported two cases of appendicitis operated upon during the course of typhoid fever.

Case 1. Carl F., American, aged eighteen years, began to suffer with pain in head, nose bleed, and feeling of malaise on overland train Aug. 23, 1899. Arriving in San Francisco August 25, he had a slight chill, with nausea and vomiting. Physician was then called, who found the temperature 101.6°, pulse 99, respiration 22, and considerable nausea. Bowels had not been moved for two days. Hydrarg. submur. 0.18, quinin 0.60, and Seidlitz in eight hours. August 26 bowels moved freely, temperature 100°, pulse 88, respiration 18, patient's condition generally very much improved in twenty-four hours. August 27 temperature 102°, pulse 100, pain in head and same uneasiness in abdomen. Was put on salol and quinin with careful diet and cold sponging. August 28 blood examination showed no clumping. September 5 rose spots were found on abdomen. September 6 Widal test positive, temperature steadily moving from 101° to 103°. About 4 P. M. September 7 patient complained of very severe pain in right iliac region, temperature went to 105°. I was called and saw patient in consultation at 6 P. M. Temperature 105.2°, respiration 36, pulse 160, rather poor quality, restless, complaining of pain in abdomen. Considerable general tenderness, decidedly increased in right iliac region, with muscles tense to point of spasm on slight pressure, and apparent increased dulness in flank. Rectal examination showed decided tenderness in recto-vesical cul-de-sac, particularly on right side. Spleen enlarged, liver dulness normal, blood count showed leucocytosis of 17,000. We decided to open abdomen as only question seemed to be between perforation and appendicitis. Made incision, separated muscles, and removed the appendix, which I present to you. Temperature came down to 103°, pulse to 110 the following day. Patient went through the usual course of typhoid fever to recovery. The anesthesia and operation did not seem to add any additional trials to his case.

Case 2. George Porter, American, aged twenty-seven years, had been living in Manila eighteen months, and while on return voyage was taken with a chill and headache. The ship's doctor diagnosed malaria, and gave large doses of quinin and Warburg's tincture. Patient sweat profusely, headache and fever continues. Had first chill April 2, 1900. On arrival in San Francisco April 18, 1900, physician found Widal test positive, and sent patient to bed. Third day in bed and nineteen days from first chill, about noon, had second chill, began to vomit and suffer severe pain in abdomen. Temperature went to 105°, pulse 156, respiration 38. I saw him in consultation at 5 P. M. He was lying on his back, legs drawn up, an anxious, frightened look on his face. Respiration shallow and thoracic, deep inspiration, increased pain. There was feeling of nausea, liver dulness normal, spleen enlarged, pulse short and quick, tongue dry and heavily coated, very thirsty. Abdomen tense and tender, with rigid muscles over right iliac region. Could not detect dulness, but thought I could feel some thickening over appendix. Recto-vesical cul-de-sac very tender on right side, not so much on left. Incision was advised and accepted at once; made usual incision for appendectomy and removed appendix, which I present to you. Temperature in twelve hours was 102°, bowels moved freely, and stool had appearance of containing blood. Patient vomited a great deal, and pulse was not satisfactory. Evening temperature 103°, pulse 128, respiration 32. Second day after operation vomiting ceased, and patient was more comfortable, pulse and temperature much the same, some tympanitis. Third day blood count showed 19,000, pulse and temperature same, bowels freely moved. Fourth day temperature 104.2°, pulse 142, respiration 34. Slight chilly feeling, some pain in seat of operation. Examination showed pus in abdominal wound, which was evacuated, temperature and pulse fell. After this patient progresses very well, the abdominal incision discharging pus for twenty-two days, then it closed, and convalescence was established.

Case 3. A gripman, apparently in perfect health, was thrown to the sidewalk while assisting in subduing an unmanageable horse, striking on his abdomen. He felt no ill effects from the fall, and completed his trip on the car, when, not feeling very well, he asked permission to stop work. He was given an opium suppository by his attending physician, who called a consultation that evening. There was no external evidence of injury, the whole abdomen was tender and slightly rigid, no rise in temperature or pulse, and no nausea or vomiting. He saw him again the next day, and his symptoms were very much the same. On the third day, with the same symptoms, following a dose of castor-oil, the patient was seized with very severe pain, rise of temperature to 103°, pulse to 120, and then collapse. An operation was at once determined upon. On opening the abdomen a large amount of pus made its escape. A perforation was found in the ilium, about as large as a split pea, and extensive adhesions of the small bowels. The man died in about eight hours after the operation. The specimen showed the perforation completely closed by the stitches that had been introduced.

Dr. W. W. Kerr: "The combination of the two diseases was by no means uncommon. He had had two such cases. One was a perforation close to the end of the appendix with ulceration extending down into the appendix itself. He thought it a question whether we should recommend operation as promptly as in cases where typhoid did not exist. The presence of typhoid should make us more cautious."

Dr. J. Henry Barbat: "I was particularly interested in these reports because a man on whom I operated recently, had typhoid fever nine months before. His attack looked like appendicitis then, but a diagnosis of typhoid was made. He never got entirely well, but had pain in the right side at times. Recently he had an attack of gall-stone colic, for which I operated, removing a small stone. I found the appendix very firmly bound down by adhesions, which made it very difficult of removal. It is reasonable to suppose that he had an appendicitis along with his typhoid."

Dr. T. W. Huntington: "The coexistence of the two diseases has long been recognized. There can be no question regarding the propriety of operating, for they withstand operation very well. I consider the blood count of special value in determining the existence of appendicitis."

Dr. Geo. M. Hughes: "Patients having typhoid react well from operation. I have seen several operated on for perforation, and, where ether was used, these patients came off the table with better pulses than before. I think we should operate in all cases of appendicitis complicating typhoid. We may be in doubt as to whether pain is due to appendicitis or typhoid ulcer, but I do not think operation will add any to the danger of the patient, and it would be better to err on the safe side and operate."

Dr. MacMonagle: "This was the extent of his experience in such cases. The question was whether one should operate in cases in which the pain became very severe, with poor pulse, shallow respiration, and vomiting. The question of perforation was left out, because the temperature went so high."

CANCER OF THE PYLORUS AND STOMACH.

Dr. T. W. Huntington exhibited a specimen showing the result of an operation for cancer of the pylorus and of the stomach. On Aug. 5, 1900, pylorectomy and partial gastrectomy was performed upon a man 67 years old. At the time of operation the pylorus was almost entirely obstructed by the growth. After removal of the pylorus and a considerable portion of the stomach, the divided end of the duodenum was attached to the posterior wall of the stomach by a Murphy button. There was rapid recovery from the operation. For three months the patient gained perceptibly; his weight increased 35 pounds, and he ate a promiscuous diet with a relish. He then began to fail, with a recurrence of former symptoms, and died Dec. 24, 1900, nearly five months after the operation. Autopsy: There was extensive cancerous involvement of the stomach along the lesser curvature and at the point of anastomosis; also of liver and pancreas.

Dr. MacMonagle: "It was a question whether or not the doctor should have taken out more of the stomach. He had had one successful and one unsuccessful case. In his fatal case he had not taken out a sufficient number of glands. He thought that statistics show that the result is as good in gastro-enterostomy as in total removal of the stomach. In this specimen of Dr. Huntington's, the union showed that the stomach had attained its original condition of strength. Recurrence was beyond our ability to prevent."

Dr. Barbat: "In the majority of successful cases the anastomosis was made with the Murphy button. It saved time; if properly applied it prevented leakage; and in general gives a better and safer result. Had the doctor cut wider the patient might have lived longer."

Dr. W. I. Terry said that the autopsy demonstrated the fact that the liver was full of carcinomatous masses, and could not believe that any further operation or wider cut could have been of any avail. Regarding the anastomosis, he thought the button was a success in this case.

Dr. Carpenter called attention to a point in the technic, which was to remove as much of the lesser omentum as possible, because the circulation is up and through the lesser omentum.

Dr. Huntington was rather pessimistic regarding the possibility of a radical cure in these cases, because it is very seldom that the disease has not involved other organs. He recognized the superior ability of one man over another in using the button. He thought that when the reports were all in, an appalling list of tragedies would be found to be due to the button. Richardson prefers the suture, and has never used the button successfully. The matter must rest for a considerable time. The button can certainly be adjusted more rapidly, and will be used where haste is necessary.

CARCINOMA MAMMAE.

Dr. Huntington also exhibited a cancerous breast which was removed recently. It showed a discreet cancerous map occupying nearly the center of the breast. This tumor was about the size of a lemon. It was quite movable, and externally no axillary glands could be detected. A full Halsted operation was done. Upon entering the axilla a large number of infiltrated glands were uncovered.

LEPROSY.

Dr. Jos. G. Morrissey exhibited a boy eleven years of age who had leprosy. He was born in the Tahiti Islands. His father was French, and his mother a native woman of French descent. There was no history of leprosy in the family. He came to this city three months ago with his father. He was first seen by Dr. C. F. Griffin, who reported the case to the health officer. He had several patches on various parts of the body of well-marked anesthesia, one spot alongside the left eye through which a pin could be passed without his feeling it. Both ears were involved, also the fingers, and the large toe of the left foot was half gone. The disease was of the nodular type. Lepra bacilli had been found, both in the blood and in sections of tissue taken from the lesions. The diagnosis had been confirmed by Drs. Montgomery, Ophuls, and Morrow. The boy's general health did not seem to be impaired, as he was quite active. The disease began about three years ago.

THE SAN FRANCISCO MEDICO-CHIRURGICAL SOCIETY.

Regular Meeting, February 4, 1901.

Dr. Jos. O. Hirschfelder in the chair.

SCARLET FEVER.

With widespread Sequellæ, Mastoid Disease, Retro-Pharyngeal Abscess, Nephritis, Meningitis.

Dr. A. G. Rosenthal presented the case, and said: April 24, 1900. Patient, D. C., age between 8 and 9 years. April 29, marked enlargement of the cervical glands; temperature 101°. May 2, glands more enlarged, temperature 104°. May 3, glands incised. May 5, temperature 104.8°. May 6, patient complained of a severe pain in the right ear. Glands in the neck suppurating; free incisions made, and the wound tamponed. May 7, temperature 101.5°. May 10, patient again has severe pain in the ear; temperature 101.2°; pulse 140. May 12, profuse odorless mucopurulent discharge from the right ear. External meatus perfectly free and of normal caliber. No pressure-pain over mastoid, no ozena, right tonsil markedly swollen. Pharynx very hyperemic, region of paratoid gland much swollen. Neck on both sides still swollen. Carbol-glycerin prescribed, and the ear syringed frequently with boric acid solution. May 13, no pain; temperature 101.9°. May 18, discharge less profuse, no pain, external meatus free; temperature 99.5°. May 30, pain over right side of the head, no discharge from the ear; temperature 102.7°; pulse 112. External meatus constricted to a slit-like opening. Diagnosis, abscess in mastoid process. Operation advised. Two hours later opened the mastoid. As soon as the antrum was reached pus welled out of the wound. Bone over sinus and towards the skull cavity intact. Temperature, evening, 101°. May 31, sent to Lane Hospital; no pain. June 3, temperature suddenly rises to 103°; dressings changed; mastoid wound looks well; wounds in the neck irrigated and freshly packed. June 4, morning, 99.8°; patient restless. June 14, patient permitted to sit up a few hours; temperature normal. Examinations of urine up to this time showed a trace of albumin; otherwise was normal. June 15, patient appeared somewhat drowsy. Temperature 103°, evening 104°. May 10, complains of pain through the head. Sleeps for a while, then suddenly cries out. Bowels in good condition. Urine a trace of albumin. Examination fundus—nothing abnormal. May 12, convulsion affecting the whole of the body. Temperature 104.8°. Vomiting. During change of dressings patient had another convulsion. Temperature 105°; pulse feeble, about 150. At five in the evening patient had still another convulsion. Pupils dilated, the right larger than the left, no strabismus, motility of the eyes not disturbed. Head drawn back, patient perfectly unconscious, Cheyne-Stokes respiration, involuntary discharge of urine and feces. Face greatly flushed. Later, opisthotonos. Occipital region very sensitive to pressure; pulse 145; temperature 105.4°. May 13, temperature 101°; pulse 150; patient improved. Fundus of eyes normal, blood in the passages, urine trace of albumin. On the afternoon of this day, return of consciousness. Demand for food. No pain; temperature 101°; pulse 100. Pupils react. Urine shows slight amount of albumin. Hyaline and granular casts and blood. Mastoid and neck wounds look healthy. Temperature 99.4°; pulse 118. July 17, patient suddenly drew the gauze used to tampon the wound in his neck out through his mouth. The wounds are repacked. Temperature 99°, pulse 76. August 30, patient left the hospital. Temperature by rectum 99.2°, pulse 100. Urine normal. Duration of case four months.

Dr. Henry Gibbons, Jr.: I can not well explain the rather remarkable course followed in this case unless it was produced by a pocket of pus, which at a critical moment discharged itself. I do not see clear evidences of meningitis. It is a good illustration of the vis medicatrix naturæ.

Dr. R. L. Rigdon: I think that while the history shows that nature is entitled to much credit, the doctor in charge is entitled to some little glory. It is the old familiar lesson of providing a free drainage for pus.

Dr. C. F. Griffin: It is not easy to explain away that group of symptoms so suggestive of meningitis. A study of the ones in this case makes it perhaps a reasonable supposition to assume that somewhere about the base of the skull the bulging of the pus cavity may have compressed a part of the meninges, and while not causing meningitis, yet produced sufficient pressure to prevent free circulation through the brain ventricles, and that intro-ventricular pressure, somewhat like that in acute hydrocephalus, may have caused the cerebral symptoms recorded in the history. When the abscess externally burst, the pressure was suddenly relieved, and the meningeal symptoms as suddenly disappeared. I agree that the symptoms were not true meningitis symptoms, but at the same time I think they must have had some other than a reflex origin.

Dr. Jos. O. Hirschfelder: I think that the opening of the mastoid did not drain the pus cavity, the pus burrowed upward toward the brain and downward, and when the pupil dilated there was meningitis; but the lesion was probably not below the dura. The convulsions, the dilation of the right pupil, undoubtedly mean meningitis. The renal symptoms were probably due to only slight irritation from toxins, notwithstanding the presence of blood and casts in the urine.

LEPROSY—MIXED VARIETY.

Dr. C. F. Griffin presented a patient and gave the following history of the case: boy, 13 years, French parentage, native of Papeete, Tahiti, was brought from the islands 5 months ago for treatment for "general weakness." Patient perfectly well until two years ago, when he stepped upon a dirty white coral with the left foot, making a cut through the skin about an inch long. The wound bled freely; patient applied a native plaster dressing of herbs for about six months. The foot swelled, requiring constant dressing of cloths around it. He walked for about six months; then saw a European doctor from a French war ship, who cut the wound, and sponged out one-half teaspoonful of some black material, leaving a hole about the size of a ten-cent piece running down to the bone of the end of the second toe. During this time the spots now present on the extremities and the face began to appear, first behind the ears, and the ears began to grow larger. The sequence of these events is unknown. No spots appeared upon the chest, back, or abdomen. The toes and foot swelled, but the legs and thighs did not swell. Cough, and loss of weight, and night sweats began two years ago, at which time the nose began to be sore and somewhat swollen. Has had, at irregular times since, bloody nasal discharges. No other illness in family. The maternal grandmother died at the age of 58, after having some operation upon the nose. Physical examination. Boy about medium size, and development to be expected at his age. Face presents nothing of note except a purplish discoloration over the left malar eminence. The skin over and around the spot feels smooth, indurated, much as would be felt in a malignant tumor, involving the skin previous to ulceration. The ears are unusually large, stand out from the head, having about them the suggestion of acromegaly. Upon the ears and about the forearms are a few spots resembling psoriasis. Impaired resonance and bronchial breathing of both apices. Weight, absolute, 61¾ pounds. Diagnosis, tuberculosis pulmonalis and psoriasis. Tonic and supportive treatment resulted in increase of weight, subsidence of cough, discontinuance of night sweats. Local treatment for the spots, chrysophanic acid in ointment. From time to time the case was seen. The spots becoming no smaller, but increasing in number, called special attention to them; when widespread areas analgesia and anesthesia were found over both arms, parts of face, and parts of lower extremities. Cover-slip smear preparations were then made and stained, establishing a diagnosis of tubercular leprosy, which diagnosis was confirmed by sections cut from a papule on the forearm. This case is brought before you for three reasons: First, to show what here in San Francisco is a somewhat infrequent disease, leprosy; second, to call attention to the ease with which the disease may be unthinkingly or carelessly diagnosed as psoriasis; third, the ease with which, when once attention is drawn in that direction, the diagnosis may be made by the aid of the microscope. The following is the simple technic followed, and is usually successful, because the bacillus of leprosy is found in the ulcerating skin lesions, in the discharge from them, and in the bloody serum from them, and not in the general blood stream of the patient. The crust, or superficial layers of skin, over a papule, being gently removed, a clean cover slip is touched lightly to the oozing surface; it is then dried and stained with carbol-fuchsin, in the same manner as for tubercle bacilli. The lepra bacilli are easily decolorized by subsequent washing in alcohol or in weak solutions of mineral acids. This characteristic distinguishes them from tubercular bacilli. Essentially the same technic may be applied to discharges from the nose.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE, AND THROAT SURGEONS.

Regular Meeting, February 21, 1901.

F. B. Eaton, M. D., president, in the chair.

LUXATION OF QUADRANGULAR NASAL CARTILAGE.

Dr. Robert D. Cohn presented a case of luxation of the anterio-inferior end of the quadrangular nasal cartilage in a girl of nine. Symmetrical with the convexity in the left nostril was a corresponding depression in the opposite side. By inserting the index fingers reposition was easy, so that there could be no doubt as to the diagnosis. Relief was sought for purely cosmetic reasons. As these cases are met with infrequently, and are passed over very lightly, if referred to at all in the textbooks, the experience of those members present, especially as regards operative procedures, would be of value.

Dr. A. B. McKee said he thought the operation appears rather more formidable than it really is, and that he thought we get better results with operating. He made an incision in the mucous membrane, and pushed it over to one side, and simply pared off some of the soft parts. He did not think it necessary to put in a suture, but in some cases, perhaps, it would be advisable. The operation is a trifling thing, but the improvement is very marked.

Dr. H. L. Wagner said that what Dr. McKee just referred to he had done in every case with success,—and successfully for the simple reason that if the projecting portion is dissected we will save the mucous membrane and just dissect off enough to make a covering. Burnett in his book refers to the number of times he has performed this operation, and gives a picture and description of the operation. Dr. Wagner had operated with less success and with a great deal of disturbance on patients where he found the septum rather thin and infractible at that portion, as the cartilaginous part of the septum may break, as in the case Dr. McKee just referred to. If we split off this portion, and it is very easy because cartilage can be cut like a piece of cheese, in nearly all cases no suture need be put in, and the cut heals up very quickly, in about two and one-half days is entirely well.

SHOT IN THE EYE.

Dr. L. C. Deane presented a boy 8 years of age who was shot in the left eye, from a distance of 70 feet, on February 10. The gun was loaded with new No. 7 shot. The shot passed through the skin of the left arm and the left side of the head. The lower lid was penetrated with two shots, which apparently entered the globe through the sclera at places corresponding to the wounds in the lid, one at the lower, inner, and anterior quadrant, and the other at the lower, outer, and anterior quadrant of the globe. Dr. Deane saw the boy for the first time to-day, eleven days after the accident. L. V. perception of light only; tension, T. (subnormal). The ocular conjunctiva is congested without signs of inflammation. Cornea and aqueous clear. Iris discolored, due to blood. Dilates readily to atropin, none having been used previous to consulting me. The iris shows no signs of inflammation. Lens and anterior capsule normal in appearance. With the ophthalmoscope there is no red reflex in any direction. The patient has practically suffered no pain since the accident except one day. No pain on pressure. The history of the case is not complete, as he was seen for the first time to-day, and the examination was hurried. Dr. Deane intended making a negative by Rontgen rays, which may elucidate certain facts. The questions of interest in such a case are: (1) What are the chances for recovery for this eye? (2) Should an attempt be made to remove the foreign body or bodies, as in this case? (3) Are the dangers of sympathetic ophthalmia decreased from an eye where no purulent infection or inflammation follows the traumatism eleven days after the accident? Of course these questions resolve themselves into the main issue: Should an eye of this character be removed?

CHEMICAL PRECIPITATE IN CORNEA.

The president presented a young man aged 19, with a chemical precipitate in the cornea from methylene blue and protargol. Patient was first seen three weeks ago, and then stated that six days before the left lower eyelid became inflamed and was subsequently poulticed with vinegar and milk. The day before he was seen a "deep" pain came on in the left eye, which prevented sleep at night. Examination showed a superficial ulceration of the left lower lid touching its edge, and crusted with dried pus. There was mucopurulent conjunctivitis. On the cornea, at its center, was seen a stippled appearance; the iris was slightly discolored, and the ciliary region tender to the touch. After cleansing the lid with pyrozone, and washing out the conjunctival sac, a 20 per cent solution of protargol in water was instilled, and then a few very small crystals of methylene blue placed upon the beginning ulcer of the cornea. It was noticed after a few minutes, that the fluid in the eye was greenish, and a larger loss of corneal epithelium was now seen, being about 3 mm. by 4 mm. in area. Atropin was ordered. The following morning the eye was much better, and the epithelium had been restored over the denuded corneal area, but underneath it was a buff-colored deposit which was between the epithelium and Bowman's membrane During the past three weeks it has remained the same. It is opaque by oblique illumination, but is transparent, as the details of the iris can be seen through it. The eye is free from all irritation and has a refraction corrected by+1.00s—0.50c. axis 45°, and V. = $\frac{20}{16}$??? so that practically the vision is not damaged as the V. of the fellow eye when corrected by same lenses is $\frac{20}{16}$?? But for cosmetic reasons a remedy is desired. The epithelium will, of course, have to be scraped off to allow any dissolving solution access.

ALAMEDA COUNTY MEDICAL SOCIETY.

Regular Meeting, October, 1901.

The president, C. G. Bull, in the chair.

DAIRIES—MILK.

The subject of milk, its production, sterilization, and presentation to the consumer in a pure form was ably presented by F. E. Pierce, D. V. S. Among other things the writer said: It is estimated that one-third of all children die before they are three years old, one of the leading causes being unwholsesome milk. Since dairies were conducted on a commercial basis only, strictly sanitary measures are not carefully observed. Ventilation, drainage, and other hygienic precautions are frequently overlooked. The method of procuring the milk, and the handling it must necessarily receive before reaching the consumer, were thoroughly and carefully considered. The ravages of tuberculosis among the herds and the susceptibility of cattle to this infection were mentioned, and the use of tuberculin as a diagnostic agent was treated of. Following this came methods to obviate the evils and improve the quality of the milk, which the writer had carefully studied and presented in excellent form. The rules issued by the U. S. Department of Agriculture, Bureau of Animal Industry, Washington, D. C., for use in the production and handling of milk were presented. These rules, if carefully adhered to and carried out by the dairymen, would convince the most blatant skeptic that the millennium had dawned.

Dr. H. N. Rowell: Education of the public is the keynote to be struck. Call the attention of the milk consumers to the filthy condition of the dairies, and convince them that dairies can be run on a scientific and sanitary basis. There is a model dairy in Berkeley. The barn floor is swept, the udders scrubbed, the milkers have on clean clothes, and their hands are well washed. The cows are milked twice a day, the milk received in sterilized pails, then put into sterilized bottles and rapidly cooled to take away animal heat. There are 180 cows, and the demand for the milk is much greater than the supply. When this dairy was first established Dr. Pierce was called in to apply the tuberculin test. He had to sacrifice one-half the herd. Every new cow purchased has been tested, so the loss now is very small. Dr. Rowell gave the history of another dairy where two barns stood on a higher level than the well. There was a case of typhoid fever in the house, and from the milk furnished from this dairy ten cases of typhoid could be directly traced. The small dairies are the most dangerous. Doctors should take a more active interest in municipal affairs. We should support the health board. We should try to induce men to come into the city who would be willing to run dairies on a scientific basis, with the help and recommendation of the whole medical fraternity.

Dr. E. N. Ewer moved that the president appoint three members of this society to see what could be done on the lines laid down by Doctor Pierce and to report at the next meeting. The president appointed Drs. Ewer, Rowell, and Stratton.

SAN JOAQUIN VALLEY MEDICAL SOCIETY.

Regular Semi-annual Meeting, Fresno, March 12, 1901.

The president, W. T. Maupin, Fresno, occupied the chair, and delivered the address. (Published at page 117.)

EYE STRAIN.

Dr. L. E. Felton, Hanford, read a paper entitled "Eye Strain." (Published at page 124.)

H. M. Sherman, Fresno, asked the reader of the paper if eye strain was not frequently due to a structural disease, or to a necrosis where no abnormal condition of accommodation existed? He related a case showing that with an improvement of the nervous trouble the normal condition of sight was fully restored. Is this condition not due in many cases to a reflex, as is so often found in other conditions of the system?

Dr. Felton in reply called attention to the very great variety of causes in eye strain, also to those of the emmetropic eye and of especial note were all-exhausting diseased conditions. The ciliary muscle is weakened and rendered thereby unable to hold the eyeball parallel. The worst cases arise from muscular defects. All neuroses play a large part in the causation of these troubles.

Dr. H. Hildreth, Delano: "Dr. Felton has called forth many facts not in vogue, and emphasizes many conditions in practice. To my mind the modern bicycle is a common cause of eye strain."

Dr. T. E. Purdon, Turlock: A neurosis is a common cause for eye strain, no matter what might be its origin. He has seen many cases of color blindness which were due to a neurotic condition. In one case the trouble was marked at menstrual time. This condition is often hereditary. The history of a family was given where mother, sisters, and brother, all neurotics in one form or other, suffered from severe eye strain, with confusion and disturbances of the brain. Glasses corrected the trouble completely. Circulatory disturbances, either due to a neurosis or causing it, are important factors. When accommodation has failed the brain does not work with the same rapidity or clearness as under normal vision. A forcing of the attention often overcomes this abnormalty temporarily, but the relapse is worse.

Dr. G. A. Hare, Fresno: A mistake is often made in the consideration of eye strain, when it is implicitly inferred that a given defect would produce given results. This is an error. There are many varieties of eye strain due to muscular defects, which give various results, and their connection with the nervous system requires great discrimination to properly estimate their real value as factors in the production of these troubles. Sometimes even serious brain irritation seems to be due to eye strain. Vomiting of blood has even occurred as a result of this trouble. Great care should be used not to err in the estimation of the amount of correction to the amount of defect. Great defects are apparently often due to slight causes and vice versa. If present in a neurotic and not due to a neurosis the eye strain would be the last factor to bring about great trouble and is a question of exceeding interest.

Dr. G. H. Aiken, Fresno: Why is our young population wearing glasses? The solution of the question is a nerve strain. Forty years ago it was very unusual for young people to wear glasses. To-day it is most common. It may be hereditary, yet to our system of forcing and cramming the little ones at school, much of these troubles is due.

Dr. C. C. Baker, Stockton, related the case of an artist who came to him from an oculist. She had worked very attentively; her general health was the cause of the trouble. Complete rest for a year restored her nervous system, and her eye trouble was cured.

Dr. Felton: Glasses are used in this condition as are splints in orthopedic surgery. There is in nearly all cases a neurosis in eye strain.

Dr. N. P. Duncan, Hanford: The main factor in eye strain is the cramming in our public schools,—overwork from study. This strain causes a disturbance that reacts severely on the whole system, nervous and general.

Dr. R. O. P. Philips, Kingsburg, related the history of his own case, how he had suffered from headache, nervousness, and eye strain. He found, upon careful scrutiny, that reading fine print made his condition much worse, and had become a strong advocate of the theory that our school system was a serious factor in these troubles. He found that proper hygiene, plenty of rest to body and eye, were necessary. Ten hours sleep is a good eye doctor.

PUERPERAL ECLAMPSIA.

Dr. T. E. Taggart, Bakersfield, reported the following cases:—

These cases of uremic eclampsia present a few clinical facts most interesting to me, and may prove equally so to each member of this society. Of great interest are they when we as judge and jury are so unfortunate as to be called upon to preside at an emergency, which, as a rule, inspires terror among us, and too often causes consternation and panic among our patients. I will not go into full details, but present the salient features, and give my mode of treatment. Case 1. October 16 to 20, uneventful, patient very quiet, semiconscious from influence of morphin, temperature ranging from 97° to 101°, with pulse of 120 to 150. Oct. 20. Sinking spell with subnormal temperature, and chill followed by elevation of temperature to 104.5°. On this date a severe nervous chill occurred, followed by extreme nervousness, which continued during entire illness. October 20 to 27. During this week chills and fever recurred from 3 to 8 times in 24 hours, there being no regularity about the attacks. Temperature ranged from 97° to 104.5°, pulse 120 to 160. Stimulants and morphin were given. Treatment: tub bath, packs, and sponging for temperature, vaginal douches, liquid diet. Analysis of urine at this time showed 30 per cent albumin. October 27 to 29. Temperature not quite so high, severe pain in bowels and in heart, 12 per cent albumin. Vaginal discharge from abscesses commenced at this time. October 29 to 30. Slept a great deal from morphia, very nervous, temperature 98° to 101°, 8 per cent albumin. October 31. At about 9 p. m. patient sank into a condition of catalepsy, which continued for 48 hours, the first 6 hours characterized by depression of temperature, and pulse. Temperature 97°, pulse 60 to 70. During the second 6 hours temperature began to rise, went up to 104°, cold pack, for 4 hours with no result, sponging; temperature dropped to 101°; the remaining 36 hours uneventful. Temperature variable 97° to 100°; pulse very weak. November 2. Came from condition of catalepsy in an extremely weakened condition, stimulants ordered continued. November 3 to 6. Patient very nervous and weak, with severe pains in heart. At this date pains in pit of stomach from indigestion began and continued during the remainder of the illness. On the 5th of this month commenced giving codein instead of morphin. Nov. 6 to 13. Patient troubled with indigestion and extreme nervousness, temperature 99° to 102°. Nov. 13 to 20. Neuralgia in head. Temperature 99° to 100°. Nov. 20 to 30. Indigestion and nervousness. Temperature 99° to 102°. Gave peptonoids with creosote with douches and massage. Dec. 1 to 12. Same conditions and same temperature with morning elevation, codein every 4 to 6 hours hypodermatically. The temperature, greatly influenced by indigestion and nervousness, seemed dependent on the discharge from the abscesses, it being necessary at times to reestablish drainage. December 12 to 31. Temperature elevated every other day in the evening. January 1. Patient beginning to be up. Temperature continued 1½ weeks. Albumin 3 per cent. January 8, albumin 1 per cent.

Case 2. Patient 23 years of age, and 200 days in first gestation, was in excellent health until March 1, 1899, when some backache with pain in left hip was complained of. March 2. Backache still present. Slight edema of lower extremities. Purgative dose of calomel and jalap. March 3. Pain in back. Urine scanty and highly colored: diminution in quantity of urine was sudden; edema of lower extremities more marked. Bitartrate of potassium. March 4. Backache, slight headache, general malaise, some puffiness under the eyes in addition to the edema of the lower limbs. Urine very scanty; free movement of bowels. Potass. citrat. ½ ounce, spirits ether nitros drachms 6, aqua ad 6 ounces, ½ ounce every 5 hours. March 5. During the day severe headache and backache, spots seen before the eyes, marked anasarca, scanty urine. Patient was put in hot pack, and free perspiration followed for nearly two hours. Brisk purge of compound jalap powder. During night headache became agonizing, and could not be controlled by usual anodynes; urine in twelve hours 20 ounces. March 6. At 7:30 a. m. patient had severe convulsion, epileptic in character, followed by stupor. At 8 a. m. morphia ⅜ grain with atropia 1-100 grain, was given hypodermically, followed by ocasional whiffs of chloroform. At 8:30 patient had a second convulsive seizure, from which time until 12:30 p. m. impending attacks of eclampsia were warded off by chloroform frequently administered. Examination of the urine showed it to be heavily loaded with albumin. During the afternoon patient's condition was somewhat improved, pulse slow, temperature normal. In the evening morphia ⅜ of a grain with atropia 1-100 of a grain was repeated, patient resting fairly well during the night. Thirty ounces of urine in 24 hours. Diet, milk every 3 hours. March 7. At 9 a. m. the same dose of morphia and atropia was given, this dose being repeated twice in the following 24 hours. Inhalation of chloroform at intervals. Patient rested fairly well. Pulse 64. Temperature normal. Forty ounces of urine in 24 hours; large percentage of albumin still present; patient complained of seeing silvery spots before the eyes, anasarca less marked. Prescription compound jalap powder. March 8. No improvement. Anasarca still present; some headache and backache. Marked loss of strength; silvery particles seen floating in the air. Nausea, tongue coated, breath foul, pulse 60. Temperature normal. Three doses of morphin, ⅜ of a grain with atropia 1-100 grain in 24 hours; chloroform at intervals; purgative dose of calomel and jalap; diet, peptonized milk. March 9. Headache and backache more severe; vision still affected; pulse 56; temperature 98°; breath ammoniacal; anasarca less marked; 45 ounces of urine in 24 hours; percentage of albumin diminished, excessive vomiting all day. Toward evening patient was exceedingly nervous and weak. Pulse 52, temperature 97.6°; gave strychnia 1-30 of a grain; morphia and chloroform continued. During the early part of the night patient experienced nervous twitchings, and at 11:30 p. m. a convulsion occurred, followed almost immediately by another. Chloroform was given, and the os uteri was rapidly dilated, and the amniotic sac ruptured. Relief followed, and patient rested well for 24 hours; 2 doses of morphia given, also 1-30 of strychnin; diet, peptonized milk per rectum. March 10. Headache and backache only slight, anasarca greatly diminished, pulse slow and rather weak; temperature normal; 32 ounces of urine in 24 hours; much less albumin present. In the early part of the evening patient presented a greatly weakened condition; gave strychnia 1-20 of a grain hypodermatically and black coffee. By midnight labor pains began, and at 5:45 a. m., March 11, spontaneous delivery of fetus and placenta occurred, the child being still born. March 11. Patient was rather nervous. and suffered somewhat from the shock; pulse slow and feeble; temperature 97.6°; 40 ounces of urine in 24 hours. Percentage of albumin diminished, no anasarca. Gave 2 doses of morphia and atropia. March 12. Patient suffered considerably from shock and from after affects of chloroform and morphin. Temperature 97°; pulse 56; 42 ounces of urine in 24 hours; albumin much less. Morphia 1-16, atropia 1-150, black coffee; diet, milk by mouth and rectum. March 13. Patient less nervous, choking sensation complained of, temperature 98°, pulse 68 and improved in quality, 48 ounces urine in 24 hours, color normal, only enough albumin to render it opaque on boiling; gave calomel 2½ grains in ½-grain doses. March 14 to 21. Patient's condition gradually improved, all symptoms of renal trouble having disappeared. March 21. Convalescent.

Dr. F. E. Coombs, Visalia: In the beginning of my practice, many years ago, experience led me to use the lancet in these cases to combat the temperature, convulsions, etc., but now we have a remedy equally as efficient, veratrum veride. Several years ago I saw a case in consultation, where the patient had convulsions, on whom we had exhausted all remedies and had given veratrum in 15 minim doses without effect. Ordered dram doses, which stayed the heart action, cut off blood supply to nerve centers, and were gratified to have complete recovery. My sheet anchor nowadays is veratrum.

Dr. J. L. Carson, Bakersfield: Was deeply interested in one of the cases reported. Had met with five cases in two years; in none of these was opportunity offered to examine the urine previous to the call. One of these cases was in a cataleptic state 8 hours. Another case had 3 convulsions. In consultation endeavored to deliver with forceps; failed; performed podalic version, after which 3 severe hemorrhages occurred; no convulsions. Other cases had hemorrhages. Always used Norwood's tincture. Mortality, 2 mothers and 2 children.

Dr. R. O. P. Philips, Kingsburg, asked Dr. Carson if he could have known of indications of the convulsions, what would he have done.

Dr. Carson: Endeavor to remove albumin by rest, milk diet, alkalies, diuretics, etc.

Dr. G. H. Aiken, Fresno: This subject, though old, is never discussed too much. There is no greater mortality among pregnant women, except from placenta previa. In five of the greatest hospitals the death rate at one time was 46 per cent, which has been reduced, according to Jewett, to 18 per cent, by modern treatment. With the more common use of veratrum veride, material improvement has been secured. It is a grave condition, requiring prompt action and great skill. Our pathological knowledge of the condition has improved, but there is still much doubt. A German authority found that there was an excess of placental cells in the blood. Some claim that the trouble is not of uremic origin. I believe that the condition of the kidney, the albumin, the lessened amount of urea, and the generally poor condition of the kidney causes a serious functional derangement. It is essentially a toxic condition. What treatment should be advised?—Elimination. Concensus of opinion is against the use of jaborandi; it is dangerous and uncertain; it increases preliminary edema, bronchorrhea, and drowns the patient in his own secretions. Chloroform in convulsions is useful, but should be used very carefully in coma, edema; it weakens action of kidney. He does not doubt the usefulness of morphin where albumin exists, but questions its use in large doses, if there is renal insufficiency with edema. It retards action of the kidneys and prevents elimination. It occurs to me that the best practice is along scientific lines,—elimination by cathartics, restoration of function, elimination by skin, with saline injections, which dilute poisons and force the kidneys to better action. If labor is over, allow flowing, and make up for loss of blood by saline transfusion. This gives the heart strength, stimulates the circulation, and makes it contract. Prophylaxis is all important. One of his cases had been on milk diet, examination of urine was frequent, very little albumin was found, all precautionary measures were used, yet the patient had most severe convulsions, with coma following. Saline injections were used, with chloral and bromide by rectum. Croton oil, with olive oil on tongue, followed by magnesia. Only slight convulsions followed labor, with perfect recovery, due, no doubt in my mind, to the saline injections. This form of treatment is of wonderful value; have used from 15 to 150 ounces in 24 hours.

Dr. W. W. Cross, Visalia, What is the condition of kidneys now?

Dr. Aiken, Normal and healthy.

Dr. Cross: Had not met with cases of puerperal eclampsia; examines the urine once in two weeks. In several cases the albumin persisted as late as the 4th or 5th month after labor. The theories advanced are numerous and conflicting; one says that it is uremia; another that it is due to pressure; another toxemia; etc. If it is due to uremia, why do we not have kidney lesions previous to the convulsions? The examination of the urine in kidney disease is uncertain. There may be no albumin, and yet we have convulsions. Urea, I believe, plays a serious part in the production of convulsions. Women should be examined for kidney disease before marriage, or at least before pregnancy.

Dr. J. E. Purdon, Turlock, supported the remarks of the previous speakers, related a case of convulsions in a nuerotic, a hystero-epileptic, who had 8 convulsions, which he treated by chloroform, turned and delivered.

He gives veratrum in most cases hypodermically, with small whiffs of chloroform.

Dr. J. A. Moore, Hanford: Though the use of the lancet had been discarded many years ago, he had used it somewhat recently with excellent results. Bleeding was allowed freely, and followed by saline injection.

Dr. G. A. Hare, Fresno, was surprised that the theory of eclampsia being due to uremia should be advanced. If he remembered correctly, urea was not toxic. It can be eliminated as rapidly as formed, hence plays no serious part. There is of course diminution of urea, but it only shows impairment of kidney action, and is of secondary importance.

IS MARRIAGE A FAILURE?

Dr. Henry Hildreth, Delano, read a paper entitled, "Is Marriage a Failure?"

Dr. A. R. Nicholson, Oleander: This paper is instructive along hygienic lines in urging the physical good of the human race. It is evident to all that marriage should be restricted, but this places the human family too near the level of animals. There is a vast difference between the two, and he would hesitate to restrict communication between beings in this life, especially in those planes that raise men above the animal. His experience leads him to believe that sentiment plays a great part in our daily life and its advance. That marriage may not be a failure, it is necessary that the husband should pay court to his wife daily, as though she were still his sweetheart, and love her nightly.

Dr. N. P. Duncan, Hanford: There are many sides to this question; its happy solution depends upon the object with which the contract is made. If for love and riches, it is a success; if for political or social preferment, it is a success; if for title, it is a success; if the husband abuses or maltreats her, she is still a countess.

Dr. A. J. Pedlar, Fresno, had read somewhere that silence gives consent, hence does not desire to go on record in that way. Dr. Nicholson struck the right keynote, but should have followed the idea further. He enjoyed the humor of the paper and its historical knowledge. It awakened a very serious thought when the medical phase was brought out. This considers two relations to the marriage state,—one, the general relation to health and the welfare of the human race, the other to the sanctity of the patient in relation to the physician, a position that enables him, when inflamed with proper respect, to uphold the sanctity of this state as to the patient's personal welfare, and to insist on the worthiness and beauty of the state, and its relation to society in general. The remedy for many failures lies very largely in the hands of the practitioner of medicine, and his counsel and advice will aid greatly to maintain the sanctity of the state if the true and laudable, and not the strictly human, end of the question be remembered.

Dr. T. E. Purdon, Turlock, considered at some length the pathological and functional changes in the nervous and general system in their consequences on the marriage state. He considers that once brain and nervous tissue becomes impaired, it is not disposed to improve. He took the stand that epileptics, criminals, degenerates, should be emasculated. Marriage of this class is a serious question, and it endangers the future of our race, as the progeny of these people are rather numerous because of the free and indiscriminate intercourse, and their children are usually degenerates. It is our duty to prevent criminality. This can not be done after the perpetrators have grown up and committed crimes, but the production should be cut off. Epileptics should not marry. This class of individuals is usually passionate. They are worse than animals, and their power of sexual intercourse should be destroyed.

Dr. C. C. Baker, Stockton, reported the case of a prostitute whose descendants to the number of 380 had been carefully followed through life, and who had become criminals in some form or other in every instance. He would urge upon his people some care in the selection of their mates, as is done in the animal world, and also the seeking of better environment for their offspring.

STOMACH LAVAGE.

Dr. R. Dixon, Hanford, presented a paper on lavage, in which he said: (1) Where the exit of chyme from the stomach is hindered by a mechanical obstruction, giving rise to the composition. To this class belongs dilation in all its forms, including that accompanying pyloric carcinoma. (2) Lavage is indicated where foreign or irritating collections are mixed with the gastric contents, which sooner or later interfere with digestion, or poison the system. To this class belong recent introductions of poisons, but especially all cases in which the gastric mucous membrane is in a catarrhal condition, coated with the glairy mucous seen in the vomited material, or bathed in the sour liquid ejected as water brash, in both of which conditions the production of gastric juice is impeded, or the secretion altered in quality. With these two principles on which to base treatment, the writer gave further indications for the employment of stomach washing, as well as the contra indications. The writer mentioned his usual tests for hydrochloric acid and the results obtained by him, and his method of employing Ewald's Test Breakfast.

Dr. H. M. Sherman, Fresno, agreed with everything in the paper, and urged the utility and importance of lavage. While some think it of doubtful value, it is because of want of experience. More attention should be paid to the technic, temperature of solution, etc. He has often been astounded with the rapid and marvelous results obtained in the most unfavorable cases by even a few washings. His method is convenient and not original. He uses a T-shaped glass tube, which is connected with the stomach tube, an outlet tube, and a fountain syringe. A velvet-eyed stomach tube is best. The solution should be at a temperature of 105° to 110° He uses 4 or 5 pints as often as one to three times a day. A favorite mixture is soda and listerine. When stomach feels full, he cuts off the flow, and allows contents to come out by voluntary contraction.

MENTAL HYGIENE.

Dr. A. T. Hudson, Stockton, presented a lengthy and studious paper on the intricate subject of mental hygiene, in the course of which briefly he said: Good ancestry makes a solid foundation on which to build character, yet environment does more to mould and guide mental development than good lineage." Following this he mentioned the order of the development of emotions and passions. The evil results of anger uncurbed and of passion given full sway were clearly portrayed by the writer, and numerous instances from the lives of prominent men were mentioned to prove the point. Laziness and dilatoriness were mentioned to be condemned, and two startling instances, which the latter was supposed to draw from real life, were presented to prove the point. The humanitarian side of life was clearly depicted by carefully chosen anecdotes from authentic sources, the writer closing with the hope and the prophecy that "some time in the future reason must be crowned king, and the emotions made subjects."

Dr. T. E. Purdon, Turlock, urged a closer attention to mental conditions in the causation of disease that were manifestations of incorrect and improper habits of living. He very rightly insisted that medical men are not mere drug pedlers, but that they study scientifically and carefully the effects of the mind and the emotions over the body, notwithstanding the recent false and slanderous charges made by the editor of the *Arena* in a late issue. A study of the effect of the mind, the intellect, the spiritual power of the system, should be brought into more prominence by the profession, in order that many cases now seeking the aid of Christian scientists, mental healers, etc., should be saved from the imposition and quackery of this class. Mental therapeutics should play a more prominent part in the armentarium of the modern physician.

TUBERCULOSIS.

Dr. T. M. Hayden, Fresno, read a paper with the above title.

TUBERCULIN A MEANS OF DIAGNOSIS IN INCIPIENT CONSUMPTION—REPORT OF CASES.

F. E. Twining, Fresno, read a paper entitled, "Tuberculin a Means of Diagnosis in Incipient Consumption—Report of Cases." (Published at page 127.)

Dr. W. W. Cross, Visalia: At present we understand that the tubercle bacilli are always the cause of the disease primarily, for the development of tuberculosis and the resisting power of the patient decides whether or not the patient dies of tuberculosis after the infection takes place. In following any of the standard works in pathology we find them to treat the subject as follows: When the tubercle bacillus enters the body, at the point where it becomes lodged the tissues commence their work to localize the disease, and there is at once formed a large number of epithelioid cells surrounding the bacilli. These cells gradually approach the type of connective tissue cells until finally there is formed a connective tissue capsule surrounding the bacilli, if the effort on the part of the tissues has been a success. This process may still undergo further changes or the bacilli may remain in the connective tissue capsule, causing no harm. If the tissues of the body do not respond to the call, or, if having once responded, their work stopped and the tubercle still has favorable surroundings, the disease will become more general, and the patient will die from the destructive process which sooner or later gives other bacteria a chance to commence their deadly work. Mr. Twining, in calling attention to the use of the different preparations of tuberculin, makes a strong point that tuberculin must not be abused, for the tendency of the tuberculin is to break down the connective tissue capsule formed around any existing tubercle, and if pushed, when a diagnosis is sought, will endanger the patient's life. Every physician feels that if there is anything to be done, it is at the time of the disease's incipiency, and if the tuberculin will tell the truth before any marked lesions can be demonstrated we may be much more successful in the treatment. Let us hope that we will yet realize the promise that is held out by this experimental work in the use of tuberculin.

Dr. H. Hildreth, Delano: I am led to believe from these papers that the administration of tuberculin would demonstrate the existence of tuberculosis; it is presumed, also, to combat the disease. Serum is used in horses and other animals, *i. e.*, for glanders, and when found diseased, are killed. We could hardly follow the same rule among human beings. Sanitary precautions are of the highest utility. The general opinion is to the effect that the disease is not hereditary, hence children of such parents may have tuberculosis, but are infected by the emanations and contact with poison from these, hence isolation of children and sanitation of surroundings are necessary. A mother with tuberculosis should not nurse her child; isolation here is demanded.

Dr. H. M. Sherman, Fresno: Two points are worthy of consideration: One that, when the report of the bacteriologist is finished, he leaves the diagnosis to the physician, whereas he always thought that the finding of the bacillus was positive and absolute. As regards the use of tuberculin it varies with the condition of the patient. In animals it is unreliable in pregnancy, heat, and abnormal conditions.

Dr. W. H. Taggart, Stockton: In 1894 I assisted Dr. Vaughn with some experiments with tuberculin. He injected six horses with serum until the temperature ceased to rise. The tuberculin thus obtained was injected into tubercular cases, 100 in number. Bacilli had been found in the sputum of every case. After six weeks' treatment most of them were free from cough, night sweats, temperature, etc., and had gained considerably in weight. What produced this change, and how was it wrought?

Dr. T. M. Hayden, Fresno: With regard to this series of cases it is to be regretted that their histories were not followed. Injection of any concentrated mixture might have done some good. An inhibition serum may have been secured from these animals, which produced this effect, when coupled with the hope of regain of health, a desideratum always looked for by consumptives. It may have been the effect of suggestion, a not uncommon means of temporary relief. These patients are poisoned by various processes and weakened by the septicemia. If these cases went on to improvement the results were excellent, but the experiments were not carried far enough. Change of air, good food, occupation, etc., should have been tried.

Dr. C. L. Browing, Fresno, asked Dr. Taggart if all the cases were relieved for a length of time? He would suggest that a tubercular process is a continued fight to overcome a disease, and in this it is dissimilar to typhoid fever and diphtheria, but like to syphilis, which, if treated for two years or more, will apparently be cured, but, as we all know, after a while will make itself evident again. And so is it with tuberculosis, treatment merely stops the progress of the disease, the cases are not cured. It is necessary to continue treatment, there is no perfect and absolute cure. It kills more people to-day than any disease. If so much had been secured to these cases treatment should have been continued. Why isolate children from parents? We have all seen cases where parents were perfectly healthy, and yet several of the children would die of tuberculosis, though no taint could ever be detected in their parents: and why is it that in a family one child will be hearty and strong and another die of the disease?

Dr. Hildreth knew a woman, the mother of five girls, a consumptive, who would not nurse or sleep with her babies, but to a certain extent isolated herself from them. She always insisted that if she did not bear children she would die promptly of tuberculosis. Pregnancy seemed to stop the advance of the disease, as it became much aggravated after each confinement by the appearance of night sweats, cough, expectoration, etc.

Dr. G. H. Aiken, Fresno, believed that this scourge can be removed, if at all, by prevention and not by cure. In incipiency alone will treatment cure the disease. Prophylaxis, a broad field, is the best means of relief, which comprises all healthy conditions in the environment of the patient, care in school life, good food, air, exercise, and sanitary measures of the strictest character. Sanitation on the coast is not practiced with anything like the same efficiency as in the East. Milk, for instance, the most potent factor in the early life of the child, is not guarded against infection as is done in other countries. In certain parts of the East and in Europe the dairies are inspected frequently, the garments of the employees, the cans, and everything connected with the preservation of the milk is strictly disinfected. Our meat is not properly examined, or to say the best, the inspection as carried out is simply farcial. The ventilation of our schools is vile. Our children are not taught to breathe. Calisthenics, as practiced and taught, are absurd. Another matter demanding very serious consideration, especially from physicians, is the sanitation of our hotels, street and railroad cars, considering the number of consumptives traveling through our state at present. Some effort at fumigation is being made, but it is not thorough by any means. The dry secretions are a most prolific source of spreading the disease. Consumptives should be required to travel in specially appointed cars and steamships. Laws to prevent consumptives from marrying will soon become general. They are in effect in many states now. Consumptives, syphilitics, epileptics, etc., should be forbidden to marry. It is through prevention that our best results will be gained.

Dr. J. E. Purdon, Turlock, dwelt at length upon the rapid spread of the disease, condemned the marriage of consumptives, epileptics, etc., and considered that in hygiene of the mind, body, proper sanitation, good food, nutrition, and prophylaxis by law and by personal environment much can be done to check the rapid advance of this archenemy of our race.

Dr. A. T. Hudson, Stockton, said that thirty years ago J. Hughes Bennett, of London, had made a great many observations on the course and treatment of this disease that to-day were of value. His observations had shown that nature had and still does much in the cure of this disease, as was proven by post-mortem examinations of many cases who had died of other causes. Dr. Hudson had, therefore, concluded that natural processes produced many cures under favorable conditions. We have all seen many cases cured for whom no relief seemed possible. There was at present no remedy that would cure of its own specific power, but remedies carefully applied, with the help of natural forces, whose method of working we at present do not understand, have produced many cures, as verified by Dr. Bennet. Recovery seems at times to take place with or without treatment.

Dr. F. O. Chamberlain, Bakersfield: It seems that the discovery of the bacillus tuberculosis, the study of its habits, the means of its spread, its virulence, and the proper consideration of its treatment, renders the question of prophylaxis paramount to all others. The laws passed will serve no useful purpose unless the United States Government will make them uniform, and carry them out with absolute strictness. Marriage, for instance, can be easily avoided in one state and effected in another; hence, unless they are made uniform, they will be as ineffective as our divorce laws. In traveling through Arizona, New Mexico, etc., there were many tubercular patients in the coaches and Pullmans, which, at the best, were only partially disinfected. If these people do not travel in the Pullmans, but in the other cars where there are no spittoons, free expectoration is done, and the regulations as carried out are of minor importance. In cities prophylaxis is incomplete, there are no spittoons in our public buildings, our regulations are not complied with. In our post-offices, for instance, where people congregate every day, spitting is common, and the floor and boxes are never cleaned. In speaking of the duties of separating the child from tubercular parents, the child should be isolated from the parent and the public at large. The disease should be reported as is diphtheria, scarlet fever, etc. At present in this valley eastern consumptives are not common, as it appears too dry for them, but they will come, and with them tuberculosis will stalk into our land. Dr. Bennett built a sanitarium in the south of France, which was a favorite spot for invalids for a long time, but gradually the waitresses, shopkeepers, nurses, etc., became infected, and the spread of the disease was frightful. Stringent and effective prophylactic and quarantine measures should be enacted.

Dr. C. C. Baker, Stockton: Prophylaxis should begin with the family. How many times do we see husband and wife followed to the grave by children with tuberculosis. Segregation should be practiced, and full warning of the contagiousness of the disease instilled into them.

Dr. F. A. Coombs, Visalia: Consumption is the same now as it was years ago. There is no more in California than in other places. Italy, Spain, the Andes have it, all nations have it, it is everywhere. Prophylaxis is the thing. The disease, at least the tendency, is inherited, but this can be prevented to a very great degree by proper hygienic and sanitary measures.

Dr. T. M. Hayden, Fresno: We do not find in every tubercle the bacillus. As the germ is the cause of the disease, how is the tubercle characteristic without any bacillus?

Dr. W. W. Cross: In the process of formation the proliferation of tissue necessary to form the tubercle is so great that the innermost cells are so changed, that no definite structure and specific structure can be made out, as evidenced by the fact that they will not stain. The cells are so destroyed that the soil kills the bacillus and none is found.

Dr. Hayden: That is a matter of theory. How can it be there when you can not find it? The failure to stain it is proof that it does not exist. The earlier the better for treatment to begin, and the greater is the possibility of a cure.

Dr. H. Hildreth: In cases of progressive tuberculosis in the male and female is the desire for sexual intercourse greater than before the disease began?

Mr. F. Twining: When the physical signs are far advanced there is practically no hope from treatment. In first and second stages there is hope before a great amount of destruction has taken place. When the disease can be diagnosd by the microscope it shows that it has well advanced. The disease may arise from the inhalation of tuberculous material. Tuberculin is not an infallible test, when the formation is well advanced the reaction is not secured. Koch's tuberculin is a toxin. Antituberculin acts in the same way as the diphtheritic serum; it neutralizes the toxins. It has been found that horses are not as suitable as some other animals for the production of antitoxin. Reports certainly prove that tuberculin does some good. The third stage may be divided into a purely tubercular stage and a mixed stage of infection. The isolation of tubercular patients is important, and demands deep consideration. If all tubercular patients and animals were isolated, what would we do with them, and how could they be managed? There are certain stages in which tuberculin can not be used, and the most common is where there is fever. Regarding pregnancy, in animals after the birth of offspring, the disease makes rapid strides. Sanitation in cattle and milk is imperatively demanded to protect the race. There is no doubt that 19 per cent of milk, where udders are not diseased, is tubercular. The urine also contains the bacillus. The spread is undoubtedly due to the spread of bovine tuberculosis. People, who do not eat meat or drink milk, do not suffer to the same extent from tuberculosis. Experiments, made by feeding animals the tubercle bacillus, show that the mesenteric glands are frequently diseased, also the lungs. Personal experiments on 17 animals showed, out of 5 killed, mesenteric disease in 3 and lung infection in 2.

Next place of meeting, Stockton, second Tuesday in October, 1901.

Officers elected:—

President, H. W. Taggart, Stockton.

First vice-president, H. Hildreth, Delano.

Second vice-president, N. P. Duncan, Hanford.

Third vice-president, C. W. Evans, Modesto.

Secretary, A. B. Cowan, Fresno.

Assistant secretary, J. D. Davidson, Fresno.

Treasurer, T. M. Hayden, Fresno.

CORRESPONDENCE.

1729 Chestnut St., Philadelphia,
Feb. 23, 1901.

My Dear Dr. McNutt: I have received a request from the surgical friends of Professor Ollier, of Lyons, to form a small American committee, for the purpose of collecting funds for a bronze statue to be erected in Lyons in the "Place Ollier," as a monument to his services. Such men as Lord Lister, Von Bergmann, Czerny, Durante, are taking part abroad, and it seems that we as Americans should do something in the same way. If you will be willing to serve as a member of such committee, will you kindly let me know? I enclose an appeal, which if you would read over and return to me with any suggestions, I shall be very glad. I propose to have the appeal published in a number of the leading medical journals. Yours very truly,

W. W. Keen.